THE THIRTEENTH YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

PART I

SOME ASPECTS OF HIGH-SCHOOL INSTRUCTION AND ADMINISTRATION:

RECONSTRUCTED MATHEMATICS
SUPERVISED STUDY
NORTH CENTRAL HIGH SCHOOLS

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BY

H. C. MORRISON, E. R. BRESLICH, L. D. COFFMAN,
W. A. JESSUP

Edited by S. CHESTER PARKER, *Secretary*

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PREFACE

The rapid growth and modification of American high schools in recent years have developed a large series of problems which are of interest to thousands of administrators and teachers. A number of these problems will be discussed in this yearbook and in others that are to follow. The policy which has characterized the preparation of the yearbooks in recent years will be continued, namely, to publish discussions that will deal directly with the practical problems of readjustment that now confront American educators, and to include descriptions and suggestions that will prove of direct practical value to teachers and administrators in solving these problems in their own schools.

The reconstruction of the material of all the subjects in the curriculum is one of the most pressing needs, owing to the new type of high-school students now constituting such a large part of the student body. The reconstruction of mathematics is one of the best examples, since the organization of this subject has been so definite and so fixed for many years. Superintendent Morrison discusses the needed readjustments very concretely, but at the same time in close relation to the fundamental principles that should determine the selection and arrangement of the material of any subject. Hence his paper will prove of interest not only to teachers of mathematics but to teachers of all subjects as well.

The desirability of substituting supervised study during school hours for home study is being urged by many parents and administrators and in the public press. Some school systems such as that of Sacramento, California, have achieved reforms along this line upon a very broad scale, but in many other places teachers are entirely ignorant of the possibility of instituting such reforms. Mr. Breslich, in his paper, presents the fundamental principles at the basis of the movement for supervised study and a review of the experiments that have been tried in various parts of the country.

Many reforms in instruction, however, cannot be undertaken successfully in some places owing to the quality of the teaching staff, their tenure of office, and the number of subjects which they are required to teach. Optimistic educational theorists and reformers often overlook

these limitations. The first step in the direction of improved conditions among the teaching staff must be based upon a clear understanding of the actually existing conditions. The paper by Professors Jessup and Coffman present important information for this purpose.

I. RECONSTRUCTED MATHEMATICS IN THE HIGH SCHOOL

THE ADAPTATION OF INSTRUCTION TO THE NEEDS, INTERESTS, AND CAPACITIES OF STUDENTS

HENRY C. MORRISON
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General dissatisfaction with results of mathematical instruction.—Few are satisfied with the present mathematics situation in the high school, particularly in the first two years of the high school. Dissatisfaction is found in the college faculties which deal with the product, among the mathematicians who are looking for a foundation for productive scholarship, among the teachers who are looking for something better; and dissatisfaction coupled with ridicule is found among the business men, engineers, and others, who expect mathematics learned in the school to function in the practical affairs of life. The purpose of this paper is an attempt to analyze the situation, to find out what is the matter with mathematics in the high school, and if possible to throw some light on the way out.

Three factors involved: students, social needs, available subject-matter.—Whatever the solution ultimately may be found to be, it can confidently be stated that the three chief factors of the problem to be solved here, as in the case of all other curriculum problems, are: (1) the pupil and the laws of his mental growth and development; (2) the social needs which the school as an institution must serve; and (3) the availability and use of the material under discussion—mathematics in this case—as an instrument for such pupil development and his adjustment to such and such social needs or purposes.

The existing mathematics of the high school, and particularly that of the first two years, however taught, falls far short of satisfying the known laws of adolescent growth, and it bears little relation to any known social needs. Referring to existing mathematics, the writer of course has in mind first of all the formal algebra and geometry usually found

in the first and second high-school years; and to these courses may be added the solid geometry, trigonometry, and advanced algebra commonly taught in the last two years.

I. THE STUDENTS, THEIR NEEDS, INTERESTS, AND CAPACITIES

Subject-matter must function throughout the process of learning.—The fact, or rather set of facts, at the bottom of the whole matter is the pupil himself, and he is the most stubborn fact of all. Everything must conform to his nature, whatever that may be. You may teach him much or little, but what you really teach will depend entirely upon what he can and will learn. For centuries untold schoolmasters have had their minds centered chiefly upon what they have thought he ought to learn and know, and seldom upon the discovery of principles which would reveal to them what he could and would learn. Now nothing is more deceptive than the appearance of learning which the average youth can present. It is possible to give the simulacrum of learning to almost any curriculum material from the multiplication table to Sanskrit. It is simple enough, that is to say, to cram a youth with learning which will enable him creditably to pass off a recitation or an entrance examination. That depends upon the force and skill of the teacher. But to ground the pupil in learning which will react to the only real test, namely, "will it function?" depends as much upon the nature of the pupil's mind and the stage of his development as upon the professional tact and skill of the instructor. Whatever the subject taught or the teaching, if it is to be in any way productive and worth the while, it must not only respond to the function test, but it must have a chance to function all the way through the process of learning. That is, as it seems to the writer, indubitable in the light of all we know of the educative process.

Present mathematics cannot function even in hands of skilled teachers.—Now here is the first real trouble with the mathematics of the high school. It not only does not function in the hands of the poor teacher but it cannot function even in the hands of the skilled teacher. That is to say, there is nothing to which most processes in algebra or geometry, or indeed arithmetic, can be applied except to more algebra or arithmetic. Hence, while the pupil may for the time being attain perfect marks, his learning becomes no part of his stock of usable ideas, and he straightway forgets all about it until he is put through a naïve "review," which in

its turn needs to be "reviewed" when he becomes a college Freshman or enters a shop. The first conclusion then is that we must find a kind of mathematics material not only which will function but which does function in some other field than mathematics while it is being taught, and such use must further respond to a real need felt as such at the time by the pupil. So only can mathematical concepts become realized.

Disciplinary argument not sufficient justification.—The objection will of course be made that mathematics is a "splendid mental discipline." Well, so is sawing wood or playing good football. Unless we can find some other justification for courses in the high school, many of them will undoubtedly presently travel the road of Greek, and we shall have little that can be called education left. It probably is not necessary to argue the disciplinary question. Suffice it to say that the algebra and geometry of the standard mathematics curriculum of the day represent the mental discipline conception of the educative process at its best. If they cannot justify their existence on the ground of their fruits, then the disciplinarians have much to explain.

It is fairly to be assumed at this day of the world that unless a course can justify itself as offering to the pupil a system of ideas which help to interpret to him his environment and enable him to react to new and strange situations in that environment, then such a course has little place in a modern educational institution.

But laying aside the purely disciplinary argument in its extreme form, it may be objected, with reference to geometry especially, that here is a method of thought in which the educated man should be trained. The contention might be granted in part if the thinking of the modern world were done in the form of the syllogism and in mathematical terms as was once the case. The fact is that the thinking of the modern world is done mainly in inductive form and in terms derived from biology.

Mental characteristics of adolescent students.—Let us return to the pupil and find out what we know about him. Little enough in scientific form, no doubt. But still an immense amount of information as to his habitual works and ways is fairly well made out. We owe a great debt to the noble army of child students led by the veteran Stanley Hall.

In the first place, this youth when he comes to the high school is, and has been for about two years on the average, an adolescent. If a boy, he is a clumsy, awkward chap, who has lost all the nimbleness and agility which he had three or four years ago, and is now chiefly occupied

physically in keeping from "falling over himself" and in keeping out of sight. Mentally his mind is dreaming and seeing things never dreamed of before. If a girl, well a mere man had perhaps best not try to do justice to her. Probably, in her own way she is at bottom in the same state as the boy, though she can laugh, or at least giggle, it off, while he cannot.

Adolescence not a period for formal drill.—Without attempting any lengthy analysis of the adolescent period, or yielding to the temptation to enlarge upon its marvelous beauties and possibilities, one conspicuous and enormously important and indubitable fact stands out: it is the worst period between the shedding of the milk teeth and the grave for anything like drill. It is a period when new ideas, especially those of a general spiritual type, are entering the opening mind in hosts of new forms; when the physical organism is undergoing a process of complete reorganization and readjustment; and when mental attitudes and powers are undergoing a similar and corresponding change. In these days, Nature cries out to the schoolmaster with his "character-building" schemes: "Hands off; this is my job; wait." Nothing could be less suitable to this youth's nature than the Latin beginner's book and the algebra and the formalized literary analysis with which the modern schoolmarm, just out of college, but yet ten thousand years older than the youth, greets him. The wonder is not that "elimination" takes place at a frightful rate at the beginning and during the first year of high school, but rather that anybody goes to high school at all.

Adolescent student can grasp mathematical concepts.—Now, it does not at all follow that the adolescent boy or girl is incapable of mathematical concepts, or necessarily finds them distasteful. As has been pointed out above, a prominent characteristic of the mental attitude of the adolescent is an openness to entirely new types of ideas as well as an entirely new set of reactions. It is very likely true that there is in the adolescent mind a capacity for apprehending new mathematical concepts of a much higher order than has generally been thought possible. Nor is it to be reasoned that the youthful mind is romantic—vague term—while mathematics is deadly unromantic, and therefore boy and bud alike will have none of it. Nor is the mind at this or any other age to be viewed after the utterly false analogy of a muscular organ which is weak in childhood but grows stronger in youth and powerful in maturity, and thus becomes capable of grasping ideas by sheer force

of a sort of energy only in the prime of life. Rather does it seem to be true that the ability of the mind to apprehend new ideas is related to the ideas already actually in mind, and the ability to assimilate new notions and make them a part of the intellectual capital is largely a question of opportunities for such ideas to function in the interpretation of some feature of the environment. There is, for instance, nothing in the nature of the case to prevent the adolescent from apprehending and assimilating the concepts of the calculus.

The difficulty with the present high-school mathematics, especially algebra, is not in the intrinsically abstruse character of the concepts, but rather (1) in the extreme difficulty of finding an opportunity for them to function, and (2) in the fact that the algebra as taught is almost entirely an organizing and drill subject.

But the concepts must be brought within the range of his experience.—You have here a pupil whose whole life is in a state of profound change, in whom a habit established today tends to break up tomorrow, and you start out to organize a set of experiences which he has never had. You have a being who represents, phylogenetically, a superman as compared with what he himself was a year or two years since—a prodigious leap which represents perhaps the cultural evolution between the stage attained by the Iroquois and that reached by the earlier Greeks. It isn't that he is not capable of a high order of thinking; he simply hasn't had the experience with which to do his thinking. He is eager and anxious for new ideas; he never will be more so; but he cannot effectively formulate ideas which form no assimilated part of his intellectual equipment. The same boy will perform marvels of wireless telegraphy the understanding of which he has gathered from his juvenile periodical, but he will gaze stupidly at his science teacher who talks to him of the elementary units of electricity, and ultimately fail in his examination. Five years more of normal growth and that same formalized physics will interest him a great deal more than the construction of electrical apparatus.

Fundamental attitudes of girls even less favorable for abstract mathematics.—Before leaving this part of the discussion, attention ought to be drawn to the girl side of the question. Not only will the general statement of the case apply to the girl as well as to the boy, but there are further special considerations to be urged in her case. The programs of most existing schools have been evolved in a line-descent from the

earlier boys' schools, and it is only recently that programs have begun to show a special adaptation to the proper education of girls. Indeed, the protagonists of equal educational rights for the sexes have often in the past rather resented any teaching for girls different from that for boys, no doubt deeming it their primary duty to demonstrate that women could compete with men successfully on their own ground. And of course they have amply succeeded and more than succeeded. But in our analysis of the difficulty which seems to exist in the present mathematics situation, there are important special features true in the case of girls which are not true in the case of boys. Whatever is true of the mental attitude of adolescents in general to mathematical culture, it is also true that boys are normally organized to react favorably to the functions of which mathematics must become one of the chief instruments of interpretation. The man in brief is normally organized through bodily and mental development and inheritance to deal with the outward material environment, and for that purpose in civilized life he must rely largely if not mainly upon mathematics in some form. In brief, his attitude sooner or later is one of practical and normal interest. The woman on the other hand is organized both bodily and mentally for dealing with an entirely different set of functions, in which mathematics plays a small part. At this particular period she must be full of new ideas and insights totally different from those which are coming to the boy of the same age. In the nature of the case her fundamental attitude must be different and relatively less favorable even than that of the adolescent boy to the formalized mathematics of the early secondary school. His attitude doubtless is "I don't see the object of all this, but I can see that I am likely to have to learn it," while hers would conceivably be expressed thus, "This is evidently a part of education and of course it is my duty to learn it, but I hate it just the same."

II. THE SOCIAL NEEDS WHICH HIGH SCHOOLS MUST MEET

High schools being rapidly reorganized to adapt to changing social needs.—Ordinarily, we might at this point proceed to the mathematics side of the question at once and scrutinize the essential function and purpose of mathematics in the educative process. We cannot do that for we are obliged to consider what kind of an institution it is for which we are studying program material. And the high school is conspicuously the institution in the whole course of education which is today in an unsettled state. The ancient landmarks have been torn up and the

boundaries are in process of revision. Whether rightly or wrongly, justifiably or otherwise, that is the case. Clearly it makes all the difference in the world in our view of the mathematics situation, or that of any other part of secondary curriculum, what view we take of the essential purpose and function of the high school as an educational institution.

High schools becoming institutions for all the people.—Conditions have changed. A generation ago the high school was an institution which few pupils reached. Life was relatively simple and the common school education was felt to suffice for the great majority. But since the eighties of the last century high-school enrolment has been outrunning population in growth all over the United States. A relative increase of five, seven, even ten times over the growth of population for twenty years has not been uncommon. Over a large extent of country, outside of the great metropolitan centers with their special problems, we have reached a stage where the high-school enrolment is often considerably in excess of half the maximum possible and, as has often been pointed out, this phenomenon is not peculiar to the United States. Now this fact points unerringly to the conclusion that the expression "common school" must be extended and applied to the secondary school. Indeed, in several of the states, it is hard to distinguish, on the face of the attendance returns, where the elementary school leaves off and the secondary school begins. Pupils do indeed drop out of school all along the line, but the loss is often quite as conspicuous between the fourth and fifth grades, or between the fifth and sixth, as between the elementary school and the high school; and the loss between the first and second high-school years is often more pronounced relatively than anywhere else. So the high school is rapidly becoming on the whole not the "people's college," but a part of the educational scheme common to all.

These social changes affect curriculum and methods.—Now these changes have altered greatly both the curriculum problem and the pedagogical problem in the high school. The former because the purpose and social function of the school has necessarily changed with the change in its clientèle; and the latter because the faculty has no longer to deal with a selected high-grade home background, but with a heterogeneous mass from every sort of social stratum.

Differentiation now should fall at beginning of adolescences; not at end of compulsory period.—The first significant principle which stands out clearly is the necessity for placing at a lower level the line of cleavage

between the elementary and the secondary school, between the pedagogy applicable to children and the pedagogy applicable to youth. The still prevalent eighth-ninth grade division point is probably related to a process of evolution which had gradually brought about a completion of eight years of work at the average age of fourteen, when by common agreement in most states the age of compulsory education has ended. With the rapid increase in the proportion of children passing over into the high school has come a curiosity as to why the first eight grades should be in the elementary school and the last four in the high school. Twenty years ago the Committee of Ten foreshadowed what is rapidly coming to be seen to be a fundamental principle, namely, that the division point should come at the dawn of adolescence rather than at its most critical point. Returns seem to indicate the thirteenth year in boys and the twelfth year in girls as good working approximations of the dawn of the adolescent changes. This corresponds very well to a division point between the sixth and seventh grades, which teachers have for a long time suspected to be the right one.

The changes above referred to, the rapid development of the present phase of society, and the increase of learning bearing upon the whole educative process, have together made necessary a careful re-examination of the whole theory of the purpose of the secondary school as a social institution.

Detailed, concrete aims, related to social needs, must replace formal aims.—We may note in the first place that no longer will vague phrases about mental discipline and character-building answer the question. Like the patriotic fervor of the average party platform, they sound well, but like party promises they are hard to carry out. The trouble is they don't mean the same thing to any two persons. Nor will such expressions as "a liberal education," or "education for citizenship," or that more recent and reverend teachers' convention title, "education for service," throw much light on the kind of mathematics we ought to teach.

The plain fact is that every school in every age has been at bottom an attempt to adjust its pupils to the requirements of the society in which they live. If we were still in the age of chivalry, we should probably find the school of the esquire a first-rate secondary school. If society in America were aristocratic, with a landed nobility based upon primogeniture, the problem would be simple. Existing secondary schools could be named by the reader which are very well adapted indeed to

furnishing the adjustment needed by such a society. But that is not what the democratic society of the day, organized on an industrial basis, calls for; and the state as the will of society simply and ruthlessly overrides the disputations of the doctors and bids us get back to the original purpose of the school, namely, getting pupils ready to live effectively in our own twentieth century United States—not in the eighteenth century, nor in Germany.

Cultural course related to contemporary needs will continue to be prominent.—Now there are two natural curriculum responses to the social adjustment theory of the high school. Your curriculum may still be strictly educative or developmental, or it may be technical with a view to immediate special training for life-work or vocation. Probably both types of school for youth above the age of about twelve will necessarily be a part of the general educational scheme for many years to come, though with the steady growth in the present trend of enrolment and with the amelioration of industrial conditions there is probably little doubt that cultural education will claim a steadily increasing majority of pupils, over technical education, up to the age of eighteen and beyond. Even now, it is a striking and significant fact that most investigations of the causes of dropping out of school do not reveal economic reasons but rather lack of interest on the part of the pupil as the real cause. Here, as so often elsewhere, popular guesswork is very much at fault.

Mathematical courses should be differentiated for cultural and technical purposes.—In any case the new cultural high school and the technical high school demand on principle very different mathematical material from that which the present high school offers on the basis of the disciplinary conception of the educative process.

The solution on the side of the technical high school should in principle be very simple, to wit: the thorough teaching of such processes as are needed in the industry for which training is given followed by drill to the point of efficient functioning within a narrow range.

But because, as it seems to me the facts indicate, the cultural high school is now, and will increasingly continue to be, the type of secondary school which the American school man will have to administer and in which the majority of our secondary teachers will work, I shall deal with that type only.

Development of adaptability in adolescents is the aim.—Now the kernel of the theory upon which the school will be administered is the development of adaptability in adolescents, according to the laws of their mental

growth. A great deal might be said upon the subject of adaptability as the greatest need of the industrial world, but I will refrain. At all events, we have here the central characteristic of the educable being, for adaptability is the standard by which all mental development above the level of tropism is to be measured.

To be more concrete, I mean that the modern American high school must produce a young man or young woman, not necessarily with specific training, but capable of intelligent adaptation in any situation in which he or she is likely to be placed. Let it be pointed out that the tragedies of modern vocational life lie, not so much in the fact that men are possessed of no special skill, as in the fact that rapid industrial changes mangle the careers of thousands who can do but one thing. As Henderson has so well said, we do not need to put industry into education half so much as we need to put education into industry. Be it remembered that adaptability and skill are exactly as much reciprocal terms in psychology as are power and speed in mechanics.

Again, lest we forget, let it be observed that the developed capacity of the individual to react to a strange situation is a question of his possessing a working system of ideas, and not of his having exercised interminably a mythical mental faculty.

Some elements of knowledge common to all zones of adaptability; others less common.—Now, it is perfectly clear that no one high-school pupil can be put in possession of all existing learning, or even of the elements thereof, as the above statement would seem to imply. Certain elements are common needs of everybody, for instance, knowledge of the human body, the heritage of the race in various institutions and a racial literature, in art, in ethics, and so on. Some elements are common to two or more zones of adaptability, as, for instance, the biological sciences to the housekeeper and the agriculturist. But the specific elements which go into an understanding of the fundamental problems of the homemaker are widely different from those needed in the educational equipment of the engineer or the attorney.

High school must discover broad zones for special talents of individuals.—Parallel with the fact that it is doubtless impossible to cover the whole range of learning in the high school, and as a consequence to attain an adaptability to any possible situation in life, is the further fact that it is undesirable by reason of the developing individuality of the adolescent. One of the chief functions of the secondary school is and must necessarily

be the furnishing of opportunity for a selective process to take place upon the native bent of a pupil, to discover to each so far as possible the broad zone within which his future activity will normally lie. Here is a specific difference between the elementary school and the secondary, for the child differs from youth in point of individuation fully as much as practice has sanctioned a difference in method between schools of the two grades named.

Children are not all alike, but different boys of ten are vastly more alike than are the same boys at the age of sixteen or seventeen. Children differ, but they differ in respect to bodily health, temperament, natural endowment, etc.; while adolescents begin to differ as adults differ not only in these respects, but much more markedly in point of interest in and natural adaptation to different types of activity. Children are as much alike as a horde of savages; adolescents begin to be as different as civilized men.

High-school curricula should be differentiated to parallel broad zones of adult activity.—Programs in high schools have for twenty years been prevailingly made up of curricula which differ from each other only in relative emphasis laid upon different phases of the same science-arts round of work. It is becoming increasingly clear that every high school should somewhat sharply differentiate its curricula along the lines of the broadest zones of adult activity. In the larger cities this division has already been foreshadowed by the erection of distinct types of high schools, to wit: the classical high school, the high school of commerce, the mechanic arts high school, and latterly the domestic arts high school. Similarly there has recently been developed in rural communities the agricultural high school. Clearly the pathway of evolution is plainly blazed out. We may go further and some time develop other high schools, as, for instance, in some parts of the East and South, high schools of the textile arts. Doubtless there will be many abortive attempts to include within the field of the high school industrial activities which are incapable of educational use, for many industries have already become so highly mechanized as to possess but little thought content for the worker.

Chief zones and resulting curricula.—There then is a picture of the well-developed program of today in a high school, enrolling say 250 pupils, and located in the typical community of say 10,000 people with industrial interests ranging all the way from a zone of farms a few miles

out to several highly developed industries in town. Such a school should offer well-differentiated curricula calculated to furnish the educational foundations for: (*a*) homemaking and housekeeping; (*b*) agriculture; (*c*) mechanical and engineering pursuits; (*d*) commerce; and (*e*) the professions through its college preparatory curriculum probably reorganized somewhat in both content and method.

In the large city, these different curricula will probably be as now independent schools. In the smaller communities probably a selection will more and more be made adapted to the chief industrial activity. In these different curricula, the mathematics and the science taught will need to differ greatly and they properly should.

Appropriate mathematics for each of these curricula.—Whatever mathematics is taught, be it remembered, must be only such as will be capable of functioning in enabling the pupil to interpret new situations as they are presented to his understanding, and which as a matter of fact does constantly so function in the learning process. We have been so long accustomed to the degradation of mathematics to the plane of a scourge calculated to mortify the spirit, if not the flesh, that it is still hard for many of us to accept fully the new point of view.

For the girl engaged in acquiring the educational foundation for her normal life-work, but little mathematics beyond the simple arithmetical computations which she has brought with her from the elementary schools will be needed.

The mathematics of the educated farmer is, first, a good deal of practical arithmetic, but not involving any very abstruse processes; second, a good conception of the properties of plane and solid figures; third, plane trigonometry and surveying. All of these the student will use in his studies and of them he will make frequent use in his vocation.

In commerce, arithmetic and certain of the processes of algebra applied to the solution of practical commercial problems will be needed.

In the mechanic arts there is an extremely interesting field for much more mathematics than we now commonly find in the secondary school. Arithmetic enough the boy already has. He needs algebra enough to understand more useful processes, and will use constantly a considerable range of constructional geometry. But more than that, his work will give him a concrete basis for trigonometry and the elements of calculus, the latter a perfectly feasible high-school subject when taught in connec-

tion with other studies and with shop work in which it has a constant opportunity to function, as I shall attempt to show later.

The mathematics of the college-preparatory curriculum will of course relate itself to mathematics in the college, until colleges conclude to relate their mathematics to what can be done in the preparatory school.

Special provision may be made for brilliant students of mathematics.—The question not unnaturally suggests itself, what place is there in the secondary school for the "born mathematician," for the youth who possesses a native bent for mathematics, and who ought eventually to become a teacher of the higher ranges of the subject and a productive scholar? It must be remembered that here, as in similar cases in other branches of learning, we are dealing with extremely rare instances. Probably, from 1 to 1½ per cent of all high-school students, take them as they come, have some incipient talent of this type. They are the geniuses of their generation, and no man has yet formulated the psychology of the genius. The trouble with most high-school mathematics courses is that they have been laid out on the theory that all pupils are variations or mutants or geniuses of this type. It is not, nor can it well be, sound public policy to adjust the school to the needs of these special types, any more than to the corresponding variations from normal at the other end of the scale. Probably all large high schools, say those enrolling 500 or more, should provide special courses for divisions of these people permitting them in every way to fulfil their bent. In other smaller schools, it is a pretty poor teacher who will not gladly put in extra time with these brilliant minds.

There remain two other considerations related to the social purpose of the school as an institution which must be considered.

Moral purposes.—The first of these is the moral purpose of the school. Mathematics particularly has been thought to have a special moral or quasi-moral purpose in the school on account of its excellent adaptation to disciplinary ends. The question then arises, in this analysis of the secondary school of the day, or at least of the immediate future, have you found any place for character-building?

Mathematics as such can contribute little to moral training.—The answer is, I think, that essential morality is a question of the relations of individuals in society, and that all we mean by moral education is the adjustment of the pupil to the standards of life in society sanctioned by the highest social ideals of his time. And this is not a matter of book

learning, but rather arises, if it arises at all, from the interaction of the various personalities composing the school, especially of course from the reactions of the pupil to the personality of his teachers. Now, personality does shine through the pages of literature and of history and it is reflected in the fine arts, but in the very nature of the subject-matter mathematics is as devoid as possible of personality. The systematic and effective moralization of the pupil is of necessity largely, if not wholly, a question of the organization of the common life of the school—its athletics, its social intercourse, its public opinion and the means for the expression of its public opinion, its free intercourse between faculty and pupils and so on.

Training in exact thinking through mathematics.—One more precious feature of the mathematics of the secondary school, namely, the use of mathematics for "molding the mind of the pupil in exact methods of thinking."

Of course this is the citadel of the disciplinary position. It has been, I think, amply demonstrated that the mind which has been molded to the method of mathematics will use that method in mathematics, and in thinking allied to mathematics, alone. The mathematician himself behaves in about the same manner as other mortals in a social or a political situation, but he reacts more efficiently in a certain type of scientific situation than does he who is devoid of mathematical training. The "method of mathematics" is a highly desirable asset to certain types of education, but the method will certainly not be acquired through a period of abstract study of algebra and geometry. It can only be acquired through the constant functioning of the mathematical processes learned, in the interpretation and solution of problems presented by other subjects.

III. CRITICAL EVALUATION OF MATERIAL AVAILABLE IN MATHEMATICS

It has already been stated that in the analysis of any program problem presented by the school, three factors must be considered. First, the nature of the pupil must be known. Second, the general purpose of the school as a social institution must be investigated. Third, the availability of the material under discussion must be criticized.

Given a body of pupils in the adolescent period whose development proceeds according to natural law, the secondary school has as its function first to direct their several individual native abilities into the proper

broad zones of adult activity, and then to equip them with those organized systems of ideas which will enable them to interpret the new and strange situations in which they will be placed. The question then arises, what has mathematics to offer which is essential and valuable in this process?

The use of mathematics as a tool in scientific thinking is most important.—First of all, mathematics like language is in the main a "tool subject," and not one possessing inherent value of its own. Language study would be of no consequence were there not literatures to be read, and thought to be expressed. Mathematics is of no value to us except as there are sciences to be studied. There are perhaps few better criteria of the trained mind than its distinguished ability to use mathematics as an instrument for the mastery of scientific truth. Indeed, it is claimed by many, as is well known, that a science is exact and of full stature as a science in proportion as it is capable of mathematical expression. The educated man endeavors to reduce all his important experiences with the material world to mathematical terms and thus to proceed confidently from step to step in his career. The uneducated man never knows exactly what his experience means, and proceeds by guess in the administration of his affairs, with great waste of energy and of substance and with a high percentage of failure.

We come then to the more definite criticism of the mathematical material of the secondary program.

Differentiated courses needed to provide opportunities to use mathematics as a tool.—In the first place, the traditional round of algebra, geometrical logic, advanced algebra, and trigonometry ought to be entirely abandoned and a fresh start made. The new work should relate itself directly to the specific needs of each of the new curricula, or of the new differentiated types of high school. That is to say, entirely different sets of mathematics material should be organized for domestic arts, for agriculture, for mechanic arts, for commerce, and for other new curricula or schools as they may be organized. Of these, by way of anticipation, it may be said that commerce and mechanic arts offer by far the best prospect for extended mathematical development. And let it be remembered that the essential justification for this step, from the mathematics standpoint, is that mathematics may have the chance to function as fast as it is learned. In each of these several schools, mathematical processes should be taught only as fast as they are needed,

but the need should be sought out and brought forward as well for the sake of the intellectual value of the subject under instruction as for the sake of the pedagogy of mathematics.

Throughout the program, the mathematics should probably be taught by the specialists in charge of the several specific subjects of the curriculum. In mechanic arts, for instance, the instructor who sets a project involving gear cutting should realize that the mathematics of the situation is as vital a part of his problem as is the mounting of the work on the machine.

To take up each curriculum in turn.

Only arithmetic and mechanical drawing needed in domestic arts.—In domestic arts, mathematics is needed to a greater or less extent in dressmaking, in the study of house construction and of the apparatus of the household, in household accounts and other economic courses, and in the study of food values. But the mathematics needed nowhere reaches beyond the elementary principles of arithmetic and a moderate amount of mechanical drawing. If algebra, geometry, and the higher mathematics are taught in addition, of what use are they? What justification of the energy and time consumed? Doubtless some of the girls will be able at the end to manipulate the concepts acquired more or less efficiently, but will such concepts interpret to them one iota which they do not understand equally well without?

Geometry, trigonometry, and some algebra in agricultural courses.—In the agricultural courses, boys will have to deal with materials and with facts which must be measured and recorded, and their measurements and records will at times become complicated beyond interpretation in simple arithmetical terms. In the measurement of their fields, in the laying-out of their highways and drains, in analyzing the strength of the different members of their buildings, in determining the profit of their different fields and domestic animals, they will need mathematics as a "tool" to enable them to read the situations presented to their intelligences. Then, what mathematics? Chiefly geometry and trigonometry and the art of making simple mathematical records and analyses; and out of these grows the need of some algebra.

Geometry taught constructively.—The geometry which the educated farmer needs is the "earth measurer," not a system of logic. He needs an understanding and knowledge of the properties of plane and perhaps solid figures learned in exactly the same manner in which he learns the

properties of soil in his soil physics. In the latter subject his instructor does not give him a limited number of axioms and devote the year to deducing the science from these primordial concepts. The geometry which is a study by constructive process with pencil and compass, with square and dividers, of the essential underlying principles of the science, is the geometry which will function and read out to the pupil the truths of which he feels the need. There is doubtless a philosophical beauty in realizing the awful necessity of geometrical truths, but our pupil may, if he be of philosophical turn, read logical geometry in the leisure moments of after-life along with his favorite theological speculations and accounts of the recent discoveries in Mars.

Trigonometry.—He will find a frequent use for trigonometry if he is to rise to the level of a truly educated farmer. He will use it later and he will use it now in acquiring the concepts of his schooldays. And trigonometry means both geometry and algebra. Geometry in the agricultural curriculum we have already discussed. The algebra needed, that is, the algebra which will function in this curriculum, centers around the equation.

The practical use of logarithms, not the theory, should probably be taught where they are first used, that is to say in the trigonometry course.

Master use of the equation and subordinate processes.—Now to acquire facility in the use of the equation means a very considerable amount of practice, but such practice should of course consist in throwing into the form of equations statements which it is desirable to have in such form, and not in the solution of puzzles in the form of "problems" totally unrelated to experience. The competent use of the equation of course implies facility in the use of a limited number of other algebraic processes, to wit: the elementary concepts of algebra, the four fundamental processes with the shorter forms of multiplication and division, the simpler cases of factoring, the extraction of the square root (but not the cube), and probably an acquaintance with the essential principles of expressions in radical form. This of course means the elimination for this curriculum of the following commonly found in texts in use in high-school courses: (1) all extended operations in complicated form such as are still found in exercise books; (2) the long processes for H.C.F. and L.C.M.; (3) all of factoring except the most common cases; (4) all of algebra as commonly treated beyond the quadratic. As before stated,

practice in putting statements in the form of the equation would be substituted for the usual exercises in the solution of problems. On the other hand, the principle implies, here as in the commercial and mechanic arts curricula, a much higher pedagogic efficiency than is often found in high schools in point of drill. That is to say, the laws of the acquisition of skill must be studied and applied to the development of what O'Shea calls automatic facility in execution. That is to say, if the pupil is to make himself master of the needed algebra for use as a language he must have acquired such facility in the use of the equation and the subordinate processes as to be able to use them naturally, and largely without thinking. For this purpose, there are numerous effective devices which will no doubt suggest themselves to the accomplished teacher.

At what age should algebra and geometry be begun?—The question suggests itself, at what point in the secondary period should the mathematics of this curriculum appear? This depends, I think, upon two considerations: first, the characteristics of behavior in the pupil at different stages in his development, and, second, the opportunity offered by curriculum or program exigencies for the learning acquired to function. Now, certain phases of the mathematics to be acquired depend mainly upon the openness of the child's mind to the assimilation of new ideas, while others depend upon his fitness to acquire skill effectively and economically. Geometry is an illustration of the former; algebra, in the main, of the latter.

Constructive geometry at about twelve; facility in algebra at about sixteen.—There is probably little or nothing in the way of introducing the type of geometrical study which I have described at any time after about the twelfth year, but the earlier the better. In the case of algebra, the unsettled state of the pupil beginning with about the age of twelve, culminating at perhaps the age of fifteen and fading into relatively settled conditions from that time on, makes attempts to develop facility in execution very unpromising before, let us say, about the age of sixteen. Indeed, it would be entirely practicable to put most of the algebra back into the years between nine and twelve when conditions are much more favorable to the development of skill, were it not for the fact that there is no opportunity in those years for the algebra to function.

Trigonometry enters at an entirely suitable period as now at about the age of seventeen or say in the eleventh or twelfth grade.

Provide constant practice in the mathematics of records.—In the agricultural curriculum, and to a much greater extent in the commerce curriculum, is the opportunity and need of what may perhaps be called the mathematics of records. As pointed out before a characteristic difference between the educated and the uneducated man is the extent to which the former reduces his experiences to mathematical form, and reads their meaning in mathematical terms. Concretely, of course, we have here the courses in bookkeeping, though what is meant is very much broader than mere keeping of financial accounts. Such mathematics in this curriculum should probably be a constant practice in all courses rather than a distinct course by itself. The pupil should certainly be familiarized from the beginning of the secondary period with the practice of graphic expression and the reading of graphs.

Commercial curriculum presents special problems and opportunities in securing educative content.—The commercial curriculum which is chronologically the oldest of our modern importations of the practical arts or vocations into the program of the secondary school is still probably the least developed. For some reason it has not been easy to organize an educational content for commerce equivalent to those of the other curricula. Nevertheless, commerce offers an almost unlimited field for educational exploitation. Perhaps the statement may be ventured that from the educational viewpoint the mathematics of the commercial curriculum is mainly a matter of understanding and recording commercial transactions and interpreting their remoter consequences.

A curriculum in commerce definitely and seriously organized for any purpose more worthy than as a temporary abiding-place for pupils of small ability will certainly offer broad scope for much mathematics—for more of the higher mathematics as now taught probably than any of the other curricula. This becomes at once evident when we contemplate what is involved in the rational interpretation of statistics, in the records of complicated transactions, in the understanding of banking, currency, and kindred questions which must of necessity be matters of daily experience to every really educated business man—not merely the occasional financier, but every small trader as well who would conduct his business intelligently.

Special aspects of commercial mathematics.—The mathematics demanded by the situation and teachable in the secondary school appear to the writer to be at least the following: (1) the science of accounts;

(2) the principles of statistics; (3) the properties of number as set forth in the higher arithmetic and algebra.

Science of accounts.—The first of these we already have, in germ at least, in the high-school courses in bookkeeping, not nearly adequate for the purpose no doubt but still far from ridiculous. Indeed, bookkeeping in the hands of a competent teacher even now satisfies more of the requirements of the educative process than most high-school courses. It should be revised wherever necessary to make of it an efficient instrument for the recording of modern business transactions, and studied more as a body of principles than it now is.

Principles of statistics.—Of the second, little can be said except to urge upon the statisticians the importance and the opportunity of making their science a part of the general fund of learning. The helplessness of the average educated individual in the presence of a simple story told in statistical form must be a matter of common observation. The business man must read a very considerable part of his literature in statistical form.

Higher arithmetic and algebra of business processes.—To mention subjects like insurance, returns on investments, annuities, and similar considerations is to justify the need of the third kind of mathematics mentioned above, namely, the higher arithmetic and algebra or the study of the properties of number as such. Today the business man refers all such matters to the specialist, and his mental attitude toward them is the same as that of the average housekeeper to the plumbing of her home; and that is but one stage above the attitude of the savage in the presence of a thunderstorm. In other words, while the business man or the housekeeper may be an educated man or woman, neither he nor she is capable of an educated attitude toward work, unless work is fully understood.

Mathematics in the curriculum in mechanic arts.—All that has been said above is applicable in principle to the curriculum in mechanic arts or to the mathematics of the mechanic arts or manual-training high school. And the same may be said of any other industrial material which is capable of educational exploitation. In general, in any such curriculum, the extent of mathematics desirable or even possible will be closely related to the extent to which the subject-matter of the curriculum is susceptible of mathematical interpretation and expression.

One final study is perhaps here worth while, to wit: a brief survey

of the mathematics indicated for courses in the mechanic arts, for this curriculum certainly offers the broadest scope for mathematics teaching, though in the mind of the present writer commerce promises distinctly the greater intensiveness.

The mechanic arts curriculum ordinarily embraces: woodworking of a somewhat advanced type; forging; pattern-making; molding and casting; and general machine-shop practice with the engine lathe, drill press, bed planer, and milling machine. To these must be added mechanical drawing of a more advanced type than that found elsewhere. There should also be added courses less commonly found, namely, the elements of engineering as applied to the construction and management of steam, hot air, and various types of gas engines, and electrical machines and appliances.

Geometry, plane trigonometry, analytic geometry, and calculus.—Now the underlying mathematics which will interpret the subject-matter of this curriculum and which will function pedagogically during the teaching process and which is probably assimilable during the secondary period is the following: (1) geometry, plane, solid, and descriptive; (2) the elements of plane trigonometry; (3) the elements of analytic geometry and calculus. Of course as mathematical tools there must also be the modicum of algebra which is really needed for reading purposes; and acquaintance with the manipulation of such devices as the slide rule and logarithmic and other tables, but not necessarily any great facility in the use of these appliances.

Bring in as applied mathematics where needed.—The processes taught must be applied mathematics brought into the program at the point where it will be used and taught as a body of principles directed to a known and felt need and not as a logical system. The order of introduction should probably be: geometry and a great deal of it, then the necessary algebra, and finally so much of the higher mathematics as will suffice.

To a very considerable extent the educational level of the mechanic arts course will probably depend upon the degree to which the school succeeds in bringing mathematics to bear upon the study of the various operations involved, especially in the machine shop in the later courses of the curriculum.

A gas engine of excellent design and creditable workmanship and of effective accomplishment under working conditions may be and

frequently is produced. So far the pupil who constructed the mechanism has undoubtedly been developed, but his development has not reached the plane of genuine education unless his attitude toward his work and his product is different from that of the intelligent craftsman. He has been educated if he has thought out the process from step to step and hence understands his engine. But to understand that machine he must have been able to work out its construction and predict its behavior in mathematical terms and with mathematical exactness.

To use another illustration. A pupil can with the aid of certain tables, formulae, and similar devices work out and construct a cam which will actuate a certain device at a given point in its revolution. So far he is doing creditable work as a mechanic. But he is on the way to become an educated mechanic only when he has analyzed the situation mathematically without the aid of tables and formulae. When he has thus been enabled to really think out his work, he at once rises to an entirely new intellectual level.

Reconstructed mathematics will save time and increase teaching efficiency.—Of course all the foregoing involves administrative and pedagogical problems of a serious nature, but the problems once faced will be found far from insuperable. It is beyond the scope of this paper to enter either the administrative or the pedagogical field. Suffice it to say that when the problem is approached from the standpoint of analysis of the situation in a scientific spirit, much as has been the case with the scientific management people in the field of industry, a wonderful saving of time and a most fortunate enhancing of teaching efficiency is usually the result.

SUMMARY

The conclusions of this paper may be summarized in the following terms.

1. The traditional round of mathematics in the high school, to wit: elementary algebra, plane and solid geometry, trigonometry, and advanced algebra, must be revised both as to organization and content, and adapted to the known nature of the adolescent and to the social purpose of the high school as that purpose is increasingly revealed by modern conditions.

2. Mathematics must be treated primarily as a language, the purpose of which is the interpretation of the various sciences.

3. Courses in mathematics must be arranged at such points in the curriculum as will give immediate opportunity for functioning.

4. The several integral parts of the program such as the household arts, etc., must each have its own specially organized mathematics; and the mathematics of each curriculum should probably be in charge of the specialists of that curriculum rather than in the hands of a separate mathematics faculty.

SUPERVISED STUDY AS A MEANS OF PROVIDING SUPPLEMENTARY INDIVIDUAL INSTRUCTION

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Main points of the paper.—

1. In recent years the necessity of providing individual instruction to supplement class instruction has been emphasized. Another movement toward greater efficiency of our schools is the growing demand for giving pupils assistance while they are studying and training them in habits of study.

2. To attain both of these ends various plans have been proposed and tried out, one of the best being the provision of organized periods of study, for the purpose of supervising individual pupils who are studying silently.

3. This situation has developed historically according to the following stages:

a) Until the second quarter of the nineteenth century the dominant method of instruction used was the recitation by each pupil to the teacher at the latter's desk, of memorized lessons, often not understood by the pupils.

b) During the nineteenth century, group or class recitations replaced individual recitations in nearly all city schools.

c) Toward the end of the nineteenth century, the necessity of providing variations in instruction was urged in order to adapt instruction to the capacities of individuals.

d) The importance of this point is strengthened by the results of statistical investigations which show that in an ordinarily well-graded class the brightest pupil can do four or five times as much work as the slowest and often twice as much as the average pupil can do in the same time.

e) Home environment is a factor in the formation of study habits. Its influence may be either for good or for bad. The time spent by many pupils in home study is done under such unfavorable conditions as to form bad intellectual and moral habits and to waste an enormous amount of time.

4. During the last twenty-five years, experiments have been organized to provide for individual differences during class instruction. They include the following more important schemes, each having its advantages and disadvantages:

a) The abolition of all class recitation and home study and the substitution of supervised study. This is known as the Pueblo plan.

b) The organization of prescribed supervised study to supplement class instruction; known as the Batavia scheme. It has been tried in high schools in various forms.

5. The experiments which supplement class recitations in the high school with supervised study include the following types:

a) Supervision in the assembly room during the regular high-school study periods by the teacher in charge (Reavis' study program cards).

b) Attendance required of pupils who are falling behind during supplementary supervised study period (Detroit and University of Chicago High School).

c) Voluntary study hours in each department for pupils needing assistance, supervised by departmental teachers (Pittsburgh, De Kalb, and University of Chicago High School).

d) Use of double or divided periods, one part for supervised study, and one part for class recitation (Joliet, Illinois, and University High School, University of Missouri).

6. The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. That of Superintendent Hughes of Sacramento is an example from one of the largest systems which has abolished home study.

7. Exact measurements are needed before final conclusions can be reached. Three examples are furnished of measured superiority secured by supervised study in mathematics and history (University of Chicago High School, and the high schools of Bloomington and Oakland City, Indiana; Mr. Rickard's technique for conducting experiments)

8. A special technique for supervising study must be developed. This is easily done for mathematics, but not for many other subjects.

9. Until the high-school school day is prolonged to seven hours, it will probably be advisable to provide for some home study, especially for the brighter students.

Introduction.—

One of the most pressing problems before the educational public at the present time is to find a means of eliminating the enormous waste of the time of pupils that results from two conditions which prevail in the schools, namely, the failure to provide for the individual differences in capacity found among pupils in the same class, and failure to organize the studying done by pupils so as to avoid the futile efforts which they now put forth to master lessons assigned for home work. One of the most important factors in solving both parts of this problem is the organization of periods for supervised study during school hours. The

chief purpose of this paper is to describe and evaluate the recent experimentation along this line. A brief discussion of the historical development of the present situation will be presented first as an aid in securing a proper perspective view of the whole problem.

The first method of instruction was the individual method.—

It is an interesting fact that the first method of instruction in the earliest schools was entirely individual and not class instruction. An examination of pictures of these schools brings this out very strikingly. They show that pupils were always taught as individuals and not in groups. The teacher remained at his desk and called upon his pupils one at a time to repeat the lesson, giving help or explanation whenever necessary.

How wasteful and unsatisfactory this method was can be understood from the testimony of men who received their education in these schools. Thus, Henry K. Oliver, describing the teaching in the Boston reading schools in 1800, says, "I received about twenty minutes of instruction each half-day, and as school was kept three hundred and sixty minutes daily, I had the privilege of forty minutes' worth of teaching and three hundred and twenty minutes' worth of sitting still, if I could, which I could not, playing, whispering, and generally wasting time, though occasionally a picture book relieved the dreary monotony."[1]

Peter Parley, born in 1793, who was educated in a rural school in Connecticut, describes the method as follows: "The children were called up one by one. . . . . She [the teacher] then placed the spelling book before the pupil and with a penknife pointed, one by one, to the letters of the alphabet, saying, 'What's that?' "[2]

Even as late as 1855, Grimshaw, writing in *Barnard's Journal*, deplored the time wasted by the old-fashioned and false method of teaching individuals instead of classes. "I notice," he says, "in my visits to the schools, many pupils sitting idle; sometimes part of the school is asleep, or what is worse, making a noise and disturbing the remainder who desire to be industrious."[3]

Thus it is seen that in the early schools individual instruction was the common method used, although to some of the educators its waste-

[1] Parker, *History of Modern Elementary Education*, p 83

[2] *Ibid.*, p 85.

[3] Holmes, *School Organization and the Individual Child*, p. 13.

fulness was apparent. The simultaneous or class method was adopted very slowly. "The individual method by which the master called his pupils to the desk one by one to recite their lessons and to receive explanations lingered late even in the heart of Prussia and in France it was in vogue as late as 1843 in 5,488 primary schools. In Scotland it held sway in some of the leading schools until well into the last quarter of the nineteenth century."[1]

Exceptional examples of the early use of class instruction.—

The method of grouping pupils into classes for simultaneous teaching under one instructor was described at length by Comenius (1592–1671) in his *Great Didactic*, published in Latin in 1657. In this book he gave a systematic presentation of his principles and methods. In the separate classes of his school he wants certain books introduced: "Out of these the teacher will read and reread the lesson for the hour, everyone listening to him. If anybody needs an explanation, he will explain it so clearly that it be impossible that they could fail to comprehend it. Then pupil after pupil rereads the lesson clearly and plainly, the others looking into their books and reading silently."[2]

It is probable that other reformers besides Comenius advocated and used the method of simultaneous instruction, but credit for its practical application on a large scale is due to the Frenchman, Jean Baptiste de la Salle (1651–1719). He organized the schools of the Christian Brethren, an association of Catholic laymen who were pledged to devote themselves to the instruction of the poor children. They used the class method of instruction.

The application of his method of class instruction is described in the *Conduct of the Christian Schools* as follows: "While one reads, all the other children in the class follow the words in their books. The master must watch carefully to see that all read to themselves what one is reading aloud, and from time to time, he must call upon some of them to read a few words that he may take them by surprise and make sure that they are really following the reading."[3]

The schools of the Christian Brethren who used this method of class instruction were without doubt the most effective elementary schools in existence before the French revolution (1789). However, in general

[1] Holmes, p 12, Landon, *School Management*, p. 119.

[2] *Did. M*, XXIX, 17, III. [3] Parker, *op. cit.*, p. 100.

France seems to have clung much longer to the individual method of instruction than her neighbors.[1]

In England the individual method was replaced by the monitorial systems of elementary schools. This was due largely to the efforts of two men, Andrew Bell (1753–1832) and Joseph Lancaster (1778–1838). The monitorial system is a method of dividing the children of a school into groups which are taught by the more advanced and competent pupils. The method had been used by some educators before the time of Bell and Lancaster, but these two educators deserve the credit for perfecting it and for putting it into practice on a large scale. Lancaster had in his school in the Borough Road 1,000 boys. "For several hundred children there was but one master but he had for his assistants a picked company of the elder boys who looked up to him with reverence and rejoiced to carry out his plans. . . . . Joseph Lancaster had the skill which gains the loyalty of subordinates, and he knew how to inspire his monitors with fondness for their work and with pride in the institution of which they formed a part."[2]

A defect of this system was the tendency to spend too much effort upon class organization and to overlook the individual. However, it brought about a radical improvement in the methods of school management.

During the nineteenth century the individual method was replaced by the class method.—

Being not only superior to the common methods of instruction in its effectiveness, but being also a very economical system, the monitorial form of the class method was adopted in the United States in 1806 by the Free School Society of New York City, and was used in other large cities during the first quarter of the nineteenth century.

The introduction of a system of instruction by which all pupils of a group are taught at the same time made it necessary to group children so as to make each group as nearly as possible uniform in ability so that the instruction would be best suited to their needs. A good classification made it possible to create for the child the best possible conditions for successful school work. This led to the "Graded System," or "Classroom System," the system of grouping together a number of children for

[1] Landon, p. 119.

[2] Fitch, *Educational Aims and Methods*, p. 334.

the purpose of instruction, the instruction being given to them as a group and by a trained teacher.

Dr. William T. Harris who deserves much credit for perfecting this plan says in a paper on "The Early Withdrawal of Pupils from School" (1872) with reference to the ungraded school: "The unclassified school has disappeared from our cities and large villages but still exists in the country districts very generally. Whenever the sizes of the schools have been such as to admit it, a system of classification has been introduced, and the immediate consequences have been (*a*) a great increase in the length of recitation; (*b*) far more thoroughness in the discussion of the lesson, sifting the different statements and probing the measuring of the same; (*c*) great stimulation of the mental activity of the pupil through trial and competition with other members of the class. These three advantages can scarcely be overestimated. They multiply the teacher's power just as organization improves the strength of the army."[1]

Toward the end of the nineteenth century educators criticized the class method.—

However, the defects of the graded system had become apparent and were keenly felt by Dr. Harris, as he says in the same paper: "It is this very system that is so organized as to prove the very greatest of all causes for the early withdrawal from school. . . . . The tendency of all classification is to unite pupils of widely different attainments. The consequence is that a lesson is too short for some and too long for others. The best pupils in the class are not tried to the extent of their ability. . . . . The poorest pupils of the class are strained to the utmost. They are dragged, as it were, over the ground without having time to digest it as they should. This develops the result that the overworked pupils are frequently discouraged and drop out of the class, and likely enough out of the school altogether."

Two years later (1874) E. E. White in a paper on "Problems in Graded School Management" criticized the graded system because of its serious defects: "If the teacher of a class adapt this instruction and requirements to the maximum capacity of his pupils, the great majority are hurried over their studies, and receive a superficial and imperfect training. If he adapts his class work to the minimum capacity of the class, the great majority are held back, and as a consequence, not only

[1] *Proceedings N.E.A.*, 1872, p. 266.

sacrifice time and opportunity, but fall into careless and indolent habits of study."[1]

The importance of providing for individual differences becomes clear in view of statistical proof.—

It is generally recognized that many children are not as able to succeed in their school work as the larger part of their class. Apparently, mass instruction under which abler children make normal progress is not efficient for backward children, for the principle that a subject is taught in the same way and to the same extent to every pupil fails to make allowance for the wide range of individual differences. Few persons, teachers included, know how great a variation in ability is found among pupils of the same class. Frederick G. Bonser[2] tested 757 children, 385 boys and 372 girls of the upper division of the fourth grade and of the fifth and sixth grades of public schools Nos. 2, 3, 4, 6, and 9, of Passaic, New Jersey. The tests employed were made up of a series of problems and questions designed to exercise the most fundamental four phases of reasoning activity, namely, the mathematical judgment, controlled association, selective judgment, and that complex of analytic and synthetic thinking used in the intellectual interpretation of literature. Table I gives the combined results of all of Bonser's tests. The table shows great variability within the various grades.

In grade 4 A the ability varies from 20 to 245 units.
" " 5 B " " " " 35 " 255 "
" " 5 A " " " " 50 " 265 "
" " 6 B " " " " 70 " 265 "
" " 6 A " " " " 80 " 260 "

It is interesting to notice that a large number of 4 A pupils can do more than some of the pupils in the other grades.

Similar statistics are given by Thorndike.[3] In a test in addition given to 83 seventh-grade pupils, all pupils being allowed the same time, they did from 3 to 20 examples correctly.

The abilities of the fourth-grade girls in thinking of the opposites of words vary from 9 to 24; of fourth-grade boys in spelling from 20 to 99; of sixth-grade girls in observing misspelled words from 10 to 94; of

[1] *Proceedings N.E.A.*, 1874, pp. 266, 267.

[2] *The Reasoning Ability of Children of the Fourth, Fifth, and Sixth School Grades.*

[3] Thorndike, *Principles of Teaching*, chap. vi.

TABLE I

Frequency of Abilities by Grades

Ability	Grade 4 A		Grade 5 B		Grade 5 A		Grade 6 B		Grade 6 A	
	B	G	B	G	B	G	B	G	B	G
20 to 25		1								
25 " 30	2									
30 " 35	2	1								
35 " 40	3	1		1						
40 " 45	1	2								
45 " 50	2	1								
50 " 55		3	1		1					
55 " 60			1		1	1				
60 " 65	3		1			1				
65 " 70	4	1				1				
70 " 75	3	1		1	2			1		
75 " 80	3	1	1	1	1		1			
80 " 85	3			1						1
85 " 90	4	3	1	1						
90 " 95	5	2	1	1	2	2		1		1
95 " 100	3	5		1	2	1				
100 " 105	1	7		1	2					
105 " 110	5	2	3	1	3					
110 " 115	2	2	3	2		1	1			1
115 " 120	1	7	6	6	2	2	4			1
120 " 125	4	3	4	3	1	5	1			1
125 " 130	4	1	3	4	1	2	1	1		
130 " 135	3	5	3	8	5	2	1			
135 " 140	5	7	3	7			5	2		
140 " 145	4	9	2	4	2	5	2	1		1
145 " 150	4	3	1	4		1	2	3	1	1
150 " 155	2	3	5	6	6	1	4	1	2	1
155 " 160	3	4	4	3	1	2	2	5	1	1
160 " 165	1	5	4	3	4	2	2	2	1	
165 " 170	1	1	2	5	4	3	8	5	3	1
170 " 175	2	1	4	2	4	3	3	3	3	4
175 " 180	1	2	3	3	3	3	6	4	4	
180 " 185	1	1	4	3	1	2	4	7	3	3
185 " 190	1	1	1	4	2	3	5	5	1	3
190 " 195	1		3	3	2	2	4	3		2
195 " 200	2		4	2	5	2	6	6	3	3
200 " 205					3		4	4	3	5
205 " 210	2	1	3	2	1	5	7	4	1	2
210 " 215			3	2	2	2	5	5	3	5
215 " 220	2		1	1		1	2	4	2	3
220 " 225	1		1		1	1	1	3	1	6
225 " 230			1				3	2	4	2
230 " 235		1	1	1			2	3	4	1
235 " 240	1				1		1	3	2	7
240 " 245	1						2	1	4	
245 " 250							4		1	1
250 " 255			1				2		2	2
255 " 260							2	1	1	
260 " 265						2	1			

"Grade A" means upper, "Grade B" means lower
The columns headed "B" and "G" represent "Boys" and "Girls" respectively.

eleven-year-old girls in addition from 5 to 44; of ten-year-old girls in rapidity of movement from 6 to 41 (number of crosses made in a fixed time); of twelve-year-old boys in observing letters from 28 to 71.

"The range of ability in school children of the same age (defectives not included)," says Thorndike, "is such that in a majority of capacities the most gifted child will in comparison with the least gifted child of the same age do over six times as much in the same time, or do the same amount with less than a sixth as many errors. The teacher of a class, even in a school graded as closely as is possible in large cities where two classes are provided in each building for each grade and where promotion occurs every six months, will find in the case of any kind of work some pupils who can do from two to five times as much in the same time or do the same amount from two to five times as well as some other pupil."

Mr. Search gives the following statistics on individual differences.[1] Members of Holyoke, Massachusetts, grammar school class of 24 pupils representing an ordinary well-graded class accomplished, in the same time, pieces of work in arithmetic varying from 140 to 479. In the Central High School of Pueblo, Colorado, pupils representing an average class in a graded school covered from forty to one hundred chapters in Caesar in the same amount of time when each pupil was permitted to advance at his own rate. In the Field High School of Leominster, Massachusetts, a senior class in review geometry showed a working ability ranging from 40 to 168 units of work.

In view of the fact of these individual differences, it becomes evident that the principle that a subject is to be taught in the same way and to the same extent to every pupil applies neither to the slow nor to the bright pupils. The bright pupil commonly has to be idle half of his time. The slow pupil is being hurried constantly. Not only does he fail to get clear understanding, meeting difficulties for which he is not prepared, but often because he needs more time than his classmates, he is being looked down upon by them. It is not surprising that he becomes discouraged, and failing in his work, drops out of school. Inability to understand the work and difficulties within the course are among the chief causes of failures. With some encouragement and individual attention, many pupils would be saved from failing. The large number

[1] P. W. Search, *An Ideal School.*

of failures in our high schools demands serious consideration on the part of every teacher.

C. R. Rands and H. B. Kingsbury[1] found recently that, in 46 high schools with an enrolment of 33,276 pupils studying English, only 81.44 per cent passed. In the same schools only 75.25 per cent of 24,404 pupils studying mathematics were able to receive credit.

A committee of the Chicago High School Teachers Club reports the statistics of failures in the Chicago high schools, as given in Table II.[2]

TABLE II

	No of Pupils		No Failed		Percentage Failed		Average Per Cent	Percentage Failed in	
	Boys	Girls	Boys	Girls	Boys	Girls		Eng	Math.
First year.....	279	375	176	135	49	40	44 0	14 6	26 0
Second year...	212	343	63	100	29.7	29 1	29 4	..	. . .
Third year. .	256	363	59	75	23.	20 7	21.7	.	.. ...
Fourth year . .	224	313	44	32	19.6	10 2	14.1	... .	. ..

The reasons for failure given by the pupils themselves are significant. One-tenth or more of the pupils who failed stated as the cause that the work was too hard, one-tenth say they were absent too much. One-fourth of those who failed in algebra said that they did not understand the work, and 50 per cent of the failing pupils in geometry said that they did not like the study.

Dr. Otis W. Caldwell reports the following statistics. Of 432 pupils who entered the Freshman class of one of our large high schools in the autumn of 1909, only 94 remained after the third semester, the other 338 having left school without completing the third semester. Of these 338 pupils, 124 made no passing grade in the school, 121 passed in only 57 per cent of the subjects which they took, and 93 passed in 78 per cent of their subjects making grades averaging above 80 per cent, the passing grade being 75 per cent. The 94 pupils who remained in school received credit in slightly more than 95 per cent of their subjects. "It seems possible that this case is more striking than would usually appear from such investigations since the problems associated with this particular

[1] *School Review*, November, 1913.

[2] *Educational Bi-monthly*, October, 1913.

school may be peculiarly difficult. In a careful study made by Mr. G. R. Johnson, of St. Louis, and covering records from twelve high schools with a total number of 18,926 pupils, he finds that approximately 90 per cent of those pupils who were failing in their work left school, while but 10 per cent of those who were making 90 per cent or better in their work left school. This percentage of those who failed and left school remains almost constant throughout the four years, with the exception that in the Chicago and Kansas City schools rather a larger percentage of the failures drop out in the earlier years than in the later years, while in the smaller schools the percentage of dropping out of those who fail remains about the same throughout the whole high-school course."[1]

Reaction against home study and class recitation.—

It is well known to parents and teachers that a very large percentage of children of our schools do not know how to study properly and profitably. When pupils are told by the teacher to study, they seem to do everything but the right thing with the result that much energy is dissipated and a great waste of time and effort is incurred.

Many teachers and parents depend upon assigned home work to develop the ability to study. It is argued that there is great value to the student in his unaided attempt to surmount difficulties; that he is gradually becoming independent by learning to read his books alone; that in the brooding of the pupil over the solution of a problem or some other assigned work the development of will power is realized; that it gives him an opportunity for quiet thinking which he cannot find in the classroom; that home work develops a habit of neatness not obtainable during the rapid progress of class work; that it is of greatest importance that the pupil should get further drill and review of the work done in the classroom; etc. In all of these arguments the great value that is claimed for home work is found in the ethical effect of being held responsible for a definite piece of work to be carried out independently and in the fundamental demand that the pupil must master it without help, using only his textbook and class notes.

There are also many teachers and parents who deny practically all of what has been mentioned in favor of home work. They claim that the notion that there is some value to the student in his unaided effort

[1] Dr. Otis W. Caldwell, "The Laboratory Method and High-School Efficiency," *Popular Science Monthly*, March, 1913.

to surmount difficulties is mistaken; that the effect of home study upon school progress is overestimated; that hasty and unmethodical use of books at home takes all the attractiveness out of them; that it means needless waste of undirected effort which might be replaced by much admirable and effective work; that it does not train, but weakens the pupil, since there is no more discouraging and nerve-destroying task than to be obliged daily to do mental work that has no meaning; that either pupils are being trained to evade duties and to use dishonest means of getting possession of the required work, or the mass of required work leads to cramming and mechanical memorizing and thus bars all spontaneous thought and activity, so that when the pupil gets through, he does not know much of anything.

Whatever may be the right view regarding home work, it is a fact that the great majority of the teaching public follows tradition rather than try new theories which in the end might be more advantageous. Therefore lessons are assigned regularly and most conscientiously, and since one of the great fears of a teacher is that of being unable to complete the requirements of the course within the limit of time, lessons covering advanced work are assigned only too often. It is very easy for the teacher to say to his class: "Study the next four pages for tomorrow; you will find some difficulties, but you are only expected to try seriously to overcome them." But the conscientious pupil will sit up late into the night neglecting his other work, spending hours fruitlessly because of his wrong viewpoint, being expected to do what was the proper function of the teacher to carry out. So it happens the *preparation* for the class work, not the class work itself, burdens the lives of the pupils.

An incident illustrating this fact is given in the *Ladies Home Journal* for January, 1913: A widow came to the superintendent of schools with the following complaint: "I have four little girls attending your schools. I am up at five o'clock in the morning to get them off to school and to get myself off to work. It is six o'clock in the evening when I reach home again, pretty well worn out, and after we have had dinner and have tidied up the house a bit it is eight o'clock. Then, tired as I am, I sit down and teach the little girls the lessons your teachers will hear them say over on the following day. Now, if it is all the same to you, it would be a great help and favor to me if you will have your teachers teach the lessons during the day, and then all I would have to do at night would be to hear them say them over."

That very few pupils have a clear knowledge of what is required in order to study and make their own a lesson as it is ordinarily assigned by the teacher is seen from the following experiment: Dr. Lida B. Earhart[1] assigned to 812 sixth- and seventh-grade pupils a short section from a textbook in geography with the following instruction: "Here is a lesson from a book such as you use in class. Do whatever you think you ought to do in studying this lesson thoroughly and then tell (write down) the different things you have done in studying it. Do not write anything else." It was found that 710 of these 812 pupils gave indefinite and unsatisfactory answers.

In a later test in which children were asked to find the subject assigned only 317 out of 828 were able to discover the most important part of the lesson. Yet determining the subject and the leading facts are among the principal topics needed for successful study of a lesson.

This shows that the greatest care on the part of the teacher in assigning the lesson is needed.

It is true that the better teachers give careful suggestions with each assignment as to method of attack, aim, and meaning of the assignment. Usually this enables the better pupil to do the work without undue difficulty, but it does not help the slow pupil who fails to make the connection between the assignment and the suggestions given by the teacher.

That in beginning classes of the high school suggestions given with the lesson are not sufficient to enable the pupil to do his work, and that the pupil's difficulty in studying his lesson is much greater than is usually assumed, is illustrated by the following occurrence: The parents of a pupil just beginning first-year mathematics in the University of Chicago High School complained to the teacher that the daughter came home day after day with home work assigned, but with no idea how to do it. The girl had told them it was the teacher's custom to assign problems with no suggestions. Feeling that this procedure was unreasonable, the parents spent the evening hours working the problems and explaining them to the child. When they were unable themselves to do the work they called on a ministerial friend living in the next block, who was good in mathematics and kind enough to help. Finally the parents came to the teacher and complained: "Sometimes even all of us cannot do the work you assign; how do you expect her to do it alone?" The teacher was surprised to learn that, after all the careful preparation in

[1] Strayer and Thorndike, *Educational Administration*, p. 240.

the classroom, a pupil, no matter how slow, should not even know that suggestions were given. Asked whether any suggestions for the next day's lesson were given, the girl said she knew of none. To satisfy the parents, the teacher took a quarter of a hour to go over the preparation of the lesson with the parents and daughter exactly as had been done in the classroom. It was found that the girl remembered it all, but failed to see how it would help her to study her lesson. It was now the parent's turn to be surprised. They went away feeling that the child, not the teacher, was at fault. But this experience shows clearly that the teacher's method of instruction did not accomplish the desired results, for at any rate this pupil had failed to make the connection between suggestions and assignment.

To ascertain to what extent the other members of the class might have this difficulty, the following experiment was tried. In assigning the next lesson, suggestions were given with unusual care. The pupils were then told that the next fifteen minutes would be given to studying the lesson, and that they should begin the assigned home work immediately. The experiment showed at once that the pupils did not appreciate the value of limited time, for all were slow in beginning work. It took some of them the whole fifteen minutes to go through the technique of getting started. Several evidently were not in the habit of working alone, for they looked about helplessly and simply imitated the others. However, these same pupils had come to the classroom daily with the lessons well prepared. Very little was accomplished in the fifteen minutes, indicating that the pupils very probably wasted much time in studying their assignments of home work. Although the class had been in the high school only a short time, the teacher had been presupposing a habit of study which did not exist. Much of the difficulty is due to lack of knowledge as to how to study and how to use time to advantage. The remedy in this case is, of course, definite instruction as to methods of study.

In the high schools one often hears a teacher require a class to study a given lesson, but seldom does one find a teacher much concerned about the method employed in satisfying this demand.

The need of teaching high-school pupils how to study becomes even more apparent when one considers the difference between the methods of the elementary and high school. Dr. Caldwell calls attention to this difference in his article in the *Popular Science Monthly*.

In the elementary schools from which these pupils have come to the high school, the school day runs from 8:30 or 9·00 to 3:30 or 4:00 o'clock and the greater part of all study is done during school hours, under direct or indirect supervision of the teacher. The teacher is present to correct any misunderstandings in assignments, to give a directing question or suggestion, or to quicken the endeavor, when such is needed. The work of one year is fairly well connected with that of the preceding years and partially new and partially old ground is covered each year. On the other hand, in the high school, particularly, in the first year, the subjects of study are largely or wholly new, often so new as to constitute fields quite unknown to the pupils. Even when some of the subjects are not new, we have a larger change than occurred between any two elementary grades. Pupils in a given subject go to the special room of the teacher for their recitations, recite, and receive their assignment, and then go to another classroom for another subject, or return to their assembly room or to their homes with their assigned work for the next day. The teacher in the elementary school ordinarily meets the pupils of a given grade for most or all of their work and knows them as they appear in all their work In high school each teacher is especially interested in one or a few subjects and this one or few are the only ones in which the teacher knows his pupils. In the elementary schools the teacher usually stands as representative of one grade of pupils. In the high school the teacher usually stands as representative of a subject.

The conditions for home study present all the possible variations, but most home study must be done under discursive influences—a little study, a little conversation about irrelevant matter, an intermittent discontinuance for small household duties, a prolonged intermission for recreation, with the half-consciousness of wrong doing because of unfinished and overhanging lessons, even interrupted sleep because of a number of unfinished tasks, a final effort to secure categorically such facts regarding the assignment as are essential to enable the pupil to meet the teacher, a consciousness of incompleteness of preparation and a hope that, if called upon at all, the call may come for the facts that are in the pupil's meager store. Often the pupil's own initiative to home study must be supplemented by commands or entreaties from parents, and sometimes parents must do pupil's work for them, under penalty of family chagrin due to impending failure of the child. In most cases poor habits of study result from purported home study, though some pupils of good ability and strong individuality may do quite effective or superior work through home study. The habit of dawdling, waste of time in getting to work, wondering whether the work really must be done, whether a lexicon, cyclopedia, or parental answer to questions may not be found, leaves an entirely improper attitude toward real study. Sham work, at first as a makeshift, later becomes the only kind of which some individuals are capable.

William C. Reavis made an investigation as to the relation between the habits of study of a pupil and his home surroundings.

The investigation covered the home conditions of three hundred and ninety-three children. Data about these homes were gathered and graded according to the following points. Educational interest on the part of the parents, means to provide adequate food, clothing, medical attention, books, papers, magazines, and entertainment, moral atmosphere that would encourage honesty, earnest effort, regard for the right of others, and a due measure of self-respect. The homes were divided into three equal tertiles and designated as Rank I, II, and III. It was found that 75 per cent of pupils of home environment of Rank I, 32.4 per cent of Rank II, and 15 3 per cent of Rank III have habits of study of the first class, 19.7 per cent of Rank I, 48.2 per cent of Rank II, and 40.7 per cent of Rank III have habits of study of the second class; and 5 3 per cent of Rank I, 19.4 per cent of Rank II, and 44 per cent of Rank III have habits of study of the third class. The investigation shows that there is a marked correlation between the rank of the home environment and the habits of study of the pupil and points out the fact that the possible origin of many of the habits and attitudes of school children is in the home. Table III classifies pupils who do, or do not do, their home work assigned by teachers. It is seen that there is a large percentage of pupils doing home

TABLE III

	Rank I	Rank II	Rank III
Home study.	38 5 per cent	54 2 per cent	7 3 per cent
No home study	4 1 " "	43 8 " "	52 1 " "

study coming from homes of the first and second rank and that there is a large percentage of pupils not doing home study coming from homes of the second and third rank.[1]

Thus, home study cannot be depended upon to develop the pupil's ability to study and it is left to the school to make the pupil able to work efficiently without help and to teach him to use his mind and his books, one of the most important lessons in the preparation for life.

However, the class system commonly in use in our high schools does not develop efficiently this ability. The class period is used partly for assigning home work and partly for recitation purposes. Usually this last part is the more prominent. Its purpose is primarily to determine

[1] Factors That Determine the Habits of Study of Grade Pupils," *Elementary School Teacher*, XII, 71–81.

whether a pupil can give a satisfactory account of the given topic which he was to prepare in his home study. Necessarily the recitation is largely devoted to clearing up difficulties. It gives usually little additional stimulus to pupils who have mastered the lessons and who therefore have little interest in the helpless efforts of their classmates trying to reproduce the assignment.

As a result the recitation as a test of a pupil's home preparation is likely to become monotonous, especially when a slow pupil recites; it encourages lack of attention and divided interest. It fails to rouse pupils to their actual capacity of effort. If, as happens frequently, the whole class period is given to recitation purposes the assigned home work is likely to be on advanced work to be followed the next day by another uninspired reproduction, etc.

This is the class system commonly in use in our high schools. It is wasteful of time and energy, productive of loss of interest, and not efficient in developing ability to study.

Experiments to provide for individual differences during class period.—

From the preceding review it is seen that both individual and class instruction fail to get the best results in school work. To go back to the individual method obviously would be a mistake, while under class instruction the variety of human nature is not recognized. It must choose those stimuli which are for the greatest good of the greatest number of those who are most deserving.

While the slow pupil is struggling with unnecessary difficulties, the bright pupil who, in the same time, can do four or five times as much work as the slowest in the class without making one-sixth as many errors is held back and is not profitably employed. He wastes time, may lose ambition, and finally become satisfied with little progress.

Thus mass instruction fails to provide for the very bright and for the very slow. The latter must either receive additional instruction or have provided for them a method which is more efficient for the individual than mass instruction.

Dissatisfied with the uniformity of classroom methods, parents, administrative officers, and teachers in schools of all grades have tried to develop methods which will be more effective for the individual pupils; which will provide for individual differences without losing the great advantage of the uniform method. A number of plans have been advo-

cated as being effective in providing for the varying needs of the pupils due to the differences between the bright and slow.

In the following, some of the more successful plans will be presented:

ABOLITION OF ALL RECITATIONS AND HOME STUDY

Perhaps the best known of the plans to provide for individual instruction is the so-called Pueblo plan which became generally known through the publications of Superintendent Search from 1894 to 1901.

The individual, or Pueblo plan.[1]—

The school day is divided into six one-hour periods. Four and one-half hours are devoted to language, science, mathematics, history, literature, and drawing. Three periods a day are definitely assigned to three literary studies carried on together. The additional one and one-half hour is regarded as extra time to be spent wherever the pupil needs it most, or in some cases according to his individual bent. In the high school a fixed program is followed. In the grades below the high school the work is entirely by flexible programs. The work is conducted largely by what is called the laboratory method, each teacher arranging a plan of work one week in advance. There is no recitation as it is generally conducted in schools. There is a class exercise for the presentation of fundamental principles in beginning a new subject, for the giving of working directions, or for the discussion of general principles applying to all individuals. Promotions are based entirely upon ability to do. There are no marks, no mechanical reward for doing right, no rankings or discriminating honors of any kind.

Various claims are made in favor of this plan by its advocates.

1. Better health: There are no excessive hours of labor. When a student leaves school, he turns the key on his school books and schoolroom work. His energies find expression through some other channel.

2. Trained, independent, self-reliant workers are produced. Since the pupil realizes that a lost hour cannot be made up by a later application, there is no passiveness or dead time to encourage wandering thought. All the work, being done under direction, is better done. Each pupil is the absolute maker of his own success.

3. More work is accomplished and the work is more thoroughly done. The experience of the school has shown that more is accomplished.

[1] *Proceedings N.E.A.*, 1895, pp. 398–405; Preston W. Search, *The Ideal School*, p. 250; *Educational Review*, February, 1894.

4. More enthusiasm in work: The opportunity for daily and continuous promotion is an immense stimulus and results in enthusiasm for work.

5. Less discouragement: The individual is appealed to because he is permitted to work in his own place and according to his own strength. Pupils who otherwise would be lost are held in school because at the beginning of the year each pupil starts just where his work the year before stopped.

6. No opportunity for additional and outside work: The demands of the school do not crowd to the wall the duties and relations of home, church, and social life.

The individual system was tried successfully[1] in Central High School, Pueblo, Colorado, in 1894, the Oakland (California) High School, the Los Angeles High School, the Holyoke High School, in 1900, the Field High School, Leominster, Massachusetts, in 1899, the Girls' High School, Boston, and the San Diego High School, of California, according to Mr. Search's account.

The Pueblo plan was tried later[2] by Mr. Gilbert B. Morrison, principal of the Kansas City (Missouri) Manual Training High School. The results reported by him were very favorable. Pupils who ordinarily would have failed were able to make creditable grades. Some pupils were able to finish a subject in less than the prescribed time. If there were strained relations between the teacher and pupil, they soon died out. The experiment was repeated later by Mr. Morrison in the McKinley High School in St. Louis with the same favorable results. Pupils were able to get a better grasp of the subject and the percentage of failures decreased considerably.

The plan has been criticized unfavorably because it fails to recognize the school as a social institution, in which members should work not only for themselves but also with and for others. The entire loss of the recitation is regretted, as it offers opportunity for competition that comes with group activity, which is eliminated by a system of individual instruction. Although skilled teachers may succeed with the system, it is difficult for the ordinary teacher to use the method successfully. It involves an enormous amount of mental bookkeeping on the part of the teacher.

[1] *The Ideal School*, pp. 252, 253

[2] Swift, *Mind in the Making*, pp. 254, 255.

The last objection is so serious as to constitute the deciding argument against the plan in the minds of many skilled administrators. Thus, I. M. Allen, principal of the Kansas City High School, while investigating plans to provide for individual differences taught an algebra class using the Pueblo plan in order to determine its merits. It secured practically all the results claimed for it, but the difficulties involved in keeping in mind the work of 25 or 30 pupils at different stages of advancement and of making daily prescriptions for them taxed his memory, inventiveness, and skill to the utmost. Obviously the ordinary untrained teacher, found in an ordinary high school, would have even greater difficulties to direct five sections of 30 pupils each by this method.

ORGANIZATION OF PRESCRIBED SUPERVISED STUDY PERIODS SUPPLEMENTARY TO RECITATIONS

The following plan aims to combine the advantages of individual and of class instruction.

The Batavia plan.[1]—

The plan was accidentally discovered by John Kennedy, superintendent of schools, in Batavia, New York. It was the custom in his schools to divide overcrowded rooms. For some time Mr. Kennedy had been interested in individual instruction as a supplement to class recitation, and it occurred to him, rather than to divide a class, to put in an additional teacher to find the weaknesses of the pupils and to help them remove the difficulties that kept them from making normal progress. As one teacher conducted the class exercise in the usual manner, the other gave individual help to slow pupils in the studying group, making it possible for them to keep up with the bright pupils in the room. Encouraged and surprised by the favorable results, the plan was introduced into other classes with equally good results. It was therefore demonstrated that the success of the experiment was not due to the strong personality of any one good teacher, but that it worked with others.

The experiment was then varied so as to repeat it in small classes with one teacher and also in high-school classes. Half of the class period was devoted to individual instruction, the other half was left for recitation purposes. The results showed that the plan was as successful

[1] *Proceedings N.E.A.*, 1901, pp 295–300.

in a one-teacher room as in a two-teacher room. The experiment has been repeated successfully in Westerly, Rhode Island, in the Kansas City High School, and in some schools in Minnesota.[1]

The following advantages are claimed for the Batavia system.

Slow pupils are helped without overpressure. Bright children are kept from marking time. Special relief is brought to teachers whose health is injured by the strain of too large classes. Under this plan there is no strain. Children (and parents) are relieved from overwork and worry, as children no longer come home with large amounts of back work to make up. Order and discipline are greatly improved. Very many apparently hopelessly dull pupils may be intellectualized. Because of the small number of failures, pupils are not withdrawing from school in as large numbers as formerly, causing a large increase in high-school attendance. The number of pupils going to college is increased correspondingly. Instead of producing dependence, as it might seem at first glance, it produced independence. Because of the individual instruction provided, it is easy for pupils to make up for losses due to absences. The per capita cost of education has been reduced since the introduction of the plan.[2]

Unfavorable criticism of the plan is to the effect that too much help given to a pupil will make him dependent upon the teacher. However, discretion on the part of the teacher may overcome that. It is also found difficult in a one-teacher class to keep bright pupils profitably employed when the slow members of the class receive the needed individual help. The application of the Batavia plan in the high school includes various types of adjustment which will be described below.

Supervision of study during the regular high-school school day.—

Home study being an important factor in the high school, it is necessary to organize the pupil's time and work so as to make him able to do the required home study and to supervise that study.

Wm. C. Reavis, Oakland City, Indiana, worked out a plan by which both of these aims were to be accomplished.[3] Each pupil had to make out on a printed card a definite program for the school day, stating

[1] Bagley, *Class Room Management*, p. 222.

[2] John Kennedy, "The Batavia Plan after Fourteen Years of Trial," *Elementary School Teacher*, June, 1912, pp. 449–62.

[3] "The Importance of a Study-Program for High-School Pupils," *School Review*, June, 1911, pp. 398–405.

the periods of study and of recitation. The teacher in charge of the study room had on file duplicate copies of these cards, making it possible for him to supervise closely the work of each pupil. Each pupil was urged to divide his time at home in a similar manner, thus arranging for regular study hours and the parents were asked to see that the program was carried out. This was done by the large majority of pupils. The study-program card contained ten suggestions for effective study. The following are claimed to be the results of the method:

1. The problem of discipline in the school was largely solved as each had a regular program to follow and there was no time or necessity for idleness.

2. Since certain subjects were specified for home study each day no time was lost by the pupil in trying to decide what he should study. This is especially valuable to the pupils who have not learned how to organize their time. It helps them to decide how much time they are to take for the preparation of each subject.

3. The pupils avoid the mistake of preparing several subjects in one period without preparing any of them thoroughly.

Required supplementary study hours have been used by some schools to supervise the pupils' study.—

Dr. Otis Caldwell in his article "The Laboratory Method" mentions the following experiment:

In the Detroit Central High School a different plan has been followed in some experiments in algebra and Latin. Principal David McKinzie writes: "We have experimented somewhat with a plan to give additional direction to the weaker pupils of the ninth grade. I cite two cases of first course in algebra and Latin. At the end of ten weeks all pupils who were marked failing in these subjects were grouped together for special work in addition to their regular recitation periods. They were given twenty lessons each on the ground covered during a period of six or seven weeks. Each pupil was treated as a pathological subject. In the final test they were marked as follows:

LATIN

Total number of pupils	15
Number marked "Excellent"	1
Number marked "Good"	6
Number marked "Fair"	3
Number marked "Weak"	1
Number marked "Not passed"	3
Number marked "Left"	1

ALGEBRA

Total number of pupils	20
Number marked "Excellent"	2
Number marked "Good"	4
Number marked "Fair"	3
Number marked "Weak"	5
Number marked "Not passed"	3
Number marked "Left"	3

It is plainly evident that a large number of ninth-grade pupils need greater direction than they receive at present, and I am convinced that we must resort to some plan to give them this additional help, if we are to eliminate excessive mortality in this grade.

In the year 1912–13 the Department of Mathematics of the University High School, at the University of Chicago, adopted the following plan of giving special attention to pupils who are likely to fail in the course or who wish to withdraw from the course because it is too difficult for them. The experiment was at first tried in first-year classes. In the first semester of the year 1911–12, ten first-year pupils failed, two were conditioned, and sixteen withdrew from the course before the close of the semester. In the following year, it seemed that this experience was likely to be repeated, as a few weeks after the beginning of the school year twenty pupils were not doing work of passing grade. It was hoped that with proper individual attention given early enough it might be possible to save some of these from failure and to keep them from withdrawing from the course. To give them this special attention in the classroom is not possible, and it is hardly fair to hold back a class for the sake of a few, if a different arrangement can be made. Therefore a special class was formed for those who could not keep above passing grade in their work. Pupils were registered for this class with the understanding that they were to return to the regular class as soon as they could do work above passing grade. Of the twenty regular members, five returned to their classes before the end of the semester. All of those were able to continue without help. In the final examination they received grades of 63, 65, 71, and 100, respectively (60 being the passing grade), one having left school before this time. Three pupils left school before the end of the semester and six of the remaining pupils failed. At the end of the school year this class had fourteen members. These pupils had covered and understood the year's work, but could not

remember it well enough to pass an examination. Some of them were apparently capable enough, but could be induced only at periods to do their best. Very little would have been gained by having these pupils repeat the course. Those who in the judgment of the teacher were worthy received credit for the course with the understanding that in case they wished to take up the second year's work, they would have to repeat the second half of the first year's course. This left four failures at the end of the second semester. These pupils must repeat the second half of the course, as a year's work in mathematics is required for graduation in the University of Chicago High School.

In the autumn of 1913 the number of failing pupils in Freshman mathematics was found to be very small. This is partly due to the change of classroom method brought about as the result of some experiments with supervised study to be described later in this paper. Although a special class was started in the expectation that the number of failing pupils might increase, it was discontinued after several weeks. The seven pupils failing in the first year's work are now allowed to remain with their classes, but are required to attend a special-study class organized for all pupils having difficulty in courses in mathematics given in the second, third, and fourth school years. Because of their small number it is possible in that study period to give to these seven pupils the needed individual attention. This arrangement makes it possible to give to the slow pupils no more attention during the regular class period than to the remainder of the class. Of the two plans just described, the preceding one was the more satisfactory. With no failure in any of the Freshman classes at any time during the year, the first-year course was completed more easily and with better results than ever before. On the other hand, most of the slow pupils were able to complete the year's work within the year's time with better results than are usually obtained by having them repeat the course.

For all pupils taking courses above the first year, a daily "study class" has been arranged. If a pupil is doing unsatisfactory work, i.e., below passing grade, he is requested to go to the study class in addition to his regular class. All absences from this study class are reported to the office and regulated by the office in exactly the same manner as absences in other classes. The time of the class is after school hours, at 3:00 P.M., and therefore not too convenient for the pupil, as it is likely to conflict with other appointments such as music lessons, dentist

appointments, etc. This serves as an incentive to a pupil to improve as rapidly as possible.

Voluntary study hours in departments.—

To give the benefit of this special class to the largest number possible, it was decided to urge pupils to attend if they were in danger of failing and needed instruction in addition to what they received in their classes. Those who failed to understand some particular lesson or had missed some work because of illness have the privilege of visiting the afternoon class and of asking questions at the proper time. A large number of pupils make use of this. It seems that this alone makes the undertaking worth while.

The study class is conducted as follows: As soon as the pupil has taken his seat, he begins to think about his lesson or, if no lesson is assigned, he finds review work. After the roll is taken (silently), the teacher passes from student to student, informing himself as to what pupils are doing, giving them help, suggestions, or whatever else is necessary to get them started on their work. Thus with twenty to twenty-five pupils in the room, the teacher is able to see each one three or four times in the hour. Some need very little help, others need several minutes each time.

It is surprising how rapidly some pupils improve who seem to have no habits of study when they come at first. At the present writing (tenth week), a number of pupils have improved enough in their regular class work to be excused by their teachers from further attendance during the study period. The fact that not only failures but often very good pupils are members of this class removes all feeling of disgrace so often attached to such classes. Parents have expressed themselves favorably about the plan, as doubtless it will do away with much of the private tutoring. Some parents regret that children are kept indoors at a time of the day when they should be outside, but are reconciled by the fact that the pupils are through with their home work or review work in mathematics, leaving them time for other things in the evening.

However, the pupil is not the only one who derives benefit from this study class. Without question the teacher learns much in working with slow pupils. The fact that more pupils fail in mathematics than in other subjects indicates either that teachers of mathematics are not as well prepared to teach their subjects as other teachers, which seems

unlikely, or that the subject itself is not as well adapted to the needs of the pupils. Without doubt the more teachers know of the difficulties boys and girls meet in a subject the better will they be able to shape a psychological course of study. The question might be raised concerning the possibility of more than one department in a school having a similar study period. This would require some administrative regulation, but there is no reason why it could not be satisfactorily arranged, especially for the few subjects in which individual assistance is most necessary.

One required study period per week in each subject.—

In the De Kalb (Illinois) High School study hours for several departments have been introduced.[1] Superintendent F. M. Giles of De Kalb describes the plan as follows:

We took five minutes from each of the six recitation periods, which we have in our school day, and put these together to make a thirty-minute study period coming once a day. In order that each class might receive the benefit of this period, we arranged that the first period class use the time on Tuesday; the second period class on Wednesday; and the third period class on Friday; the following week that the fourth, fifth, and sixth period classes use the period for supervised study. On Monday and Thursday the teacher uses this study period by having come to her room for individual attention, such students as she thinks may need individual help. So much for the plan.

In regard to the results, we have found that the plan is of greatest advantage with the younger students, and in the first part of a subject. That is, the younger students need direction in method of study, and all the students find it helpful when learning the method of attack upon a new subject.

We find it necessary, of course, to keep some definite check upon the work of the students. This is done by setting for them certain concrete problems in their study. For instance, to work out a certain number of examples; to be ready to prove a given theorem; to pick out the topic sentences in a given paragraph; to determine the most important points of a certain topic in physics; to pick out the leading events in a given historical topic, etc. We find the method works very well in mathematics, science, and history. Some difficulty has been experienced in the study of an English classic, such as *Macbeth*, in making the work of the study period definite. We are working at this problem.

Besides teaching methods of study, we have found one decided advantage of this study period is that by reason of it, the teacher gets a considerable

[1] See editorial in *School Review* for January, 1913, p. 58.

insight into the methods of study of the various students and can discover those who waste time, who have faulty methods of attack, etc.

Another point which we have found as a result of this work is that the teachers themselves are not at all clear as to definite methods of study. There have been a number of problems raised as to how a student should study.

The success of the plan is perhaps due to the following advantages:

1. Some progress is made in that the teacher has an opportunity to find out the real difficulties that the pupils experience in the various subjects.

2. Backward or dull pupils can receive assistance on points which are not clear, and can receive assistance at definite periods where otherwise they would tend to become discouraged.

The greatest disadvantage of the plan is the limited amount of time given to this study class. It gives the teacher little opportunity to supervise in any effective way the study of pupils. Pupils can come merely for assistance on difficult points. Little opportunity is offered for individual work with the pupils. The time which the teacher spends with the pupil is too short for the teacher to do much in aiding the pupils in acquiring proper methods of study.

In the Pittsburgh high schools, supervised study was arranged for by using one class period a week for each of the subjects, English, mathematics, Latin, and German. For this period no arrangement of lessons is made and no preparation is required, while no grade of any sort is given for the work of the hour. The time is used by each teacher as he or she may think best, either as (1) a review of the past work, (2) preparation for future work, (3) emphasis on particular portions of the work which require attention, (4) a "clearing-house" period for review, drill, handing back papers, discussion, or personal help to pupils who may be back in their work on account of excusable absences, or (5) "spell-downs," or other games to clinch the work covered in the class periods. After a year's trial, the experiment was considered a success because of the following advantages gained:

1. Increased efficiency in the quality of the work done, due to a better understanding of the work.

2. The students became enthusiastic over the conference hour and took a keener interest in the classroom work.

3. Pupils felt free to discuss the difficulties of the assigned work, since no marks of the hour were kept.

4. Every pupil was given an opportunity to have any part of the work covered in the regular class period discussed freely and any difficulties explained.

5. Teachers had an opportunity to develop right habits of thinking, proper methods of attacking new problems, and correct methods of study.

The following disadvantages of the plan are apparent:

1. The time allowed—one hour a week for each subject—is not sufficient to do the most effective work.

2. The time could more profitably be spent in really supervising the study of the pupils rather than, as now, in clearing up difficult points or emphasizing important points, which makes out of it little more than a regular recitation period.

3. Unless the teacher were a good disciplinarian and at the same time enthusiastic over her work, there would be a tendency to regard these periods as recreation periods when nothing was expected, and as a consequence little would be accomplished.

4. Only the brighter class of students who were efficient and who really required little help would be likely to bring up questions of difficulty. The careless or indifferent pupil who really needed to be taught how to study would have no points to discuss.

The double- or divided-period plan is in use in many schools.—

In the Joliet Township High School, this method of supervising study has been tried for about three years. In response to a letter of inquiry, Principal J. Stanley Brown describes the plan as follows:

> The plan means that two periods of forty minutes each are set aside for first- and second-year classes. One of these periods is devoted to recitation work. The second period, which immediately follows the first with an intermission of a minute or two, is given up to supervised study. The teacher passes about the room, directs the work of the pupils, assists them when absolutely necessary, and thinks she accomplishes as much in that single period as the pupil alone unaided could accomplish in two periods. This supervised work has been applied especially to mathematics work, arithmetic, algebra, geometry, in the first and second years in the school. It has been applied with excellent results to beginning foreign language work, Latin, German, French. Of all the teachers who have had experience in this experiment, only one is unfavorable, so I think we can say the experiment is fairly successful. At any rate, we shall continue to use the plan mentioned until we find something

better. We have various other experiments going on all the time, most of which prove unsuccessful, but if after five new experiments, we secure one favorable result, we think the result was worth while.

At the University High School, Columbia, Missouri,[1] a plan is followed by which study under the teacher's supervision is made possible by reducing the time of the recitation to a minimum. Approximately one-third of the class hour is spent in recitation, leaving the remainder for study and careful assignment of lessons, thus reversing the common practice by which little time is given to study but most of it to the recitation. The class hour is divided into three parts: (1) Study: The object of this is not to make home study unnecessary, but to train the pupil so as to make more effective home study possible. He is taught the methods of study. (2) The assignment of the next day's lesson: The assignment is not necessarily new work. It supplements the home study done in class or continues and completes work begun there. (3) The recitation: The recitations are no longer poor and time consuming, because the preparation was well done. Thus the standard of the recitation is greatly raised.

General testimony concerning success of supervised study.—

The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. A good example is the testimony of Superintendent Charles C. Hughes, of Sacramento, California. A news item stating that in the Sacramento schools home study had been abolished and supervised study introduced suggested a letter of inquiry to Superintendent Hughes who replied in a letter as follows:

I feel quite sure of my stand in this matter, since as early as 1899 when city superintendent of schools of Alameda, California, I abolished home study, and substituted for it actual periods for each subject demanding study in the school-program, thus providing, under special supervision of the teacher, intensive study during school hours. The Alameda schools still retain the plan, and several of my principals who have become superintendents since are firm advocates of the plan, and have instituted it in their departments. I found that children were not learning how to study. The University and the high schools complained that students came to them ignorant in this matter. I found that the average home made no preparation for children's study. If the standard was low the light was inadequate, and the surroundings often

[1] J L. Meriam, "Reaction and Study," *School Review*, November, 1910.

pernicious. As the home standards were raised, the social life of the family interfered, and the case was rare where a study room, or even a study place properly lighted, heated, or ventilated, was prepared for the child or children in the family. The parents were found either unable or unwilling to aid their children in study. We discovered that we were shifting to the home the duty which belonged to the school.

After the plan was put into operation we soon discovered that, although we had cut down the number of recitations considerably, the periods of intensive study under supervision made up many times for the reduction.

We also found that we could make a better measure of the children—that teachers were, under the old system, apt to pat the quick boy on the back and praise him, when he had studied probably not more than a few minutes at home, and scold his slower brother who had really put in considerable time, thus making a prig or bluffer of the one, and eventually discouraging the other. The school should not be a recitative machine. Study is more important than the recitation. We are getting better results in our work and the teachers know their pupils better. The school is taking upon its shoulders its whole duty, instead of only part of it.

Our plans for supervised study in the elementary schools are embodied in the inclosed schedules, which I am glad to send. We have extended the idea, only in part, to the high school. I have no printed data showing the efficiency of supervised study.

Under the first question I have given you the result which any teacher will testify to. The high schools are feeling it where it is in operation, since the boys and girls come to them better prepared as independent students. We have departmental work in our grammar grades and the success of departmental work depends very largely upon the abolition of home study. Young children would be handicapped and the departmental work ruined if each teacher were allowed to give as much home work as she believed her subject called for. Under our system, her judgment is immediately impeached when she gives more than the study period set aside for that purpose.

One of the defects of our modern high school with its fine specialization lies in the fact that each teacher gives as much as any child can do in an evening, which results in a child having three or four times as much as he can do, with the further result that he becomes discouraged, or attempts to bluff his way through.

Experimental proofs of superiority of supervised study.—

Before final conclusions are drawn regarding the efficiency of supervised study, the general testimony should be supported by exact measurements. The following three examples show the superiority secured by supervised study in mathematics and history.

To measure the effect of home study upon class progress, the following experiment was tried in the Department of Mathematics of the University High School, University of Chicago,[1] with two algebra classes. No home work was assigned in one section, so that the time usually taken up with the discussion of home work was gained for study. In another class, taking the same work, home work was assigned. The method of instruction in both sections was the same. Both sections spent fourteen lessons on the chapter on simultaneous linear equations, at the end of which the same test was given to both with the following results:

	A	B	C	D	F	Average
Section A (Home work with no supervised study) . . .	7.1	21 4	21 4	0	50	62 8
Section B (Supervised study with no home work)	0	6.2	37 5	25	31 2	65 5

The low grades received in both classes may be explained by the fact that the test was not easy, and that no review was given in preparation for the test. If the time had allowed it, a second and fairer test would have been given.

Some idea as to the relative ability of these classes can be obtained from the results of the departmental final examination given at the end of the preceding semester. The grades were distributed as follows:

	A	B	C	D	F	Average
Section A. . .	25	25	37 5	12 5	0	81 4
Section B. .	29 4	23 5	23 5	17 7	5 9	79 4

It is seen that section B, though a little weaker than section A, came out a little stronger on the average after supervised study without home work. The poorer students profited particularly by this method. Supervision seems to have enabled pupils at least to make up for the loss of time due to lack of assigned home work. The average amount

[1] "Teaching High-School Pupils How to Study," *School Review*, XX, 505–15.

of time spent on home work in section A was one hour and fifteen minutes per lesson. However, when the number of problems worked in each section was counted, it was found that in section A the average number of problems per pupil was two less than in section B. These results indicate that the amount of home work may be reduced in high-school classes, provided a method of instruction more effective than the common method is used.

It was interesting to notice the progress of the class working under supervision. At first the class was very slow, and it did not get along as rapidly as the other section. During the third lesson, however, it became evident that the pupils were learning to work independently. After the fourth lesson both classes were doing the same work, and they were kept together for the remainder of the time the chapter selected was being studied.

The section under supervision worked with more confidence and pleasure. This was especially true of the slow pupils. A girl who had failed during the first semester and was in the class on condition made a grade of 78 in the test on this chapter. Her grade in the final examination at the end of the first semester had been only 40. A boy who barely received a passing grade at the end of the first semester, and who at first seemed to be unable to do anything under supervision, suddenly found that with a little greater effort he could do as well as his classmates. There was an immediate improvement, and one day when a speed test was given he surprised everybody, even himself, by leading the class. A girl returning after a week's illness, and still in a weakened condition, said she "could not understand anything that was said," and felt greatly discouraged. By giving her a little more attention than the other pupils she was enabled to do the work before the end of the recitation, and had no further difficulty. Under the common system of instruction very little attention is paid to such cases. The teacher usually allows a certain amount of time in which the pupil must "catch up." Very often, in addition to the difficulties found in understanding the class work, "back work" is assigned. The injustice of all this at times drives some pupils to use dishonest means of getting possession of all this required work.

The following chapter, on "operations with fractions," was covered by both classes in six lessons. However, section A now worked under supervision, and section B took home work. A test was given to both

classes as soon as the chapter was completed. The grades in this test were as follows:

	A	B	C	D	F	Average
Section A	31 2	25	18 7	12 5	12 5	77 5
Section B	52 9	23 5	5 9	11 8	5 7	86 4

The average amount of time per lesson spent on home work was thirty-six minutes. The number of problems could not be computed because much oral work was done in section A, but there was very little difference. The power obtained by section B in the preceding chapter, while working under supervision, persisted and was strong enough to be helpful in the following chapter.

Before any final conclusions can be drawn, evidently further experimental work is needed. The results of the foregoing tests, however, corroborate the impression received during the time the study of these classes was being made. Both classes accomplished the same work within the regulation time, although section B did no home work and section A spent an hour and fifteen minutes daily on the assigned lesson. Section B, the weaker section at the end of the first semester, came out stronger than section A, after nearly three weeks of supervised study, and proved to be still stronger during the study of the next chapter. In both classes progress under the new method was very slow at first, but there was rapid improvement.

Following these experiments in the Department of Mathematics in the University High School, some of the instructors there practically omitted home work because their experience showed that better results could be obtained by giving the time of the class period to class work on the part of the pupil rather than to reciting the lesson. In the final departmental examination of the first year classes the section in which home work was minimized ranked second, while in the second- and third-year courses, the classes doing little home work ranked first. Thus with supervised study loss of home work did not retard the progress of these classes.

The same superiority of supervised study was shown in an experiment in classes in mathematics in Bloomington, Indiana.[1]—

Thirty-six pupils were divided into two groups of eighteen each and of abilities as nearly equal as possible. Their abilities had been

[1] J. H. Minnick, "An Experiment in the Supervised Study of Mathematics," *School Review*, December, 1913, p. 670

determined by the average grades of three semesters' work in algebra. The group which was to have supervised study was not quite as strong as the unsupervised group. The unsupervised class recited the first period and prepared the assigned home work wherever they saw fit. The supervised class recited the second period and prepared the home work under supervision during the third period, with the understanding that no further work was expected of them. Every pupil was kept busy during this study period either by working on the assigned home work or by additional work. The experiment was carried on for fifteen weeks, and the weekly average marks received for recitation were compared. It was found that the supervised class had the higher average. The results of the examination are given in Table IV.

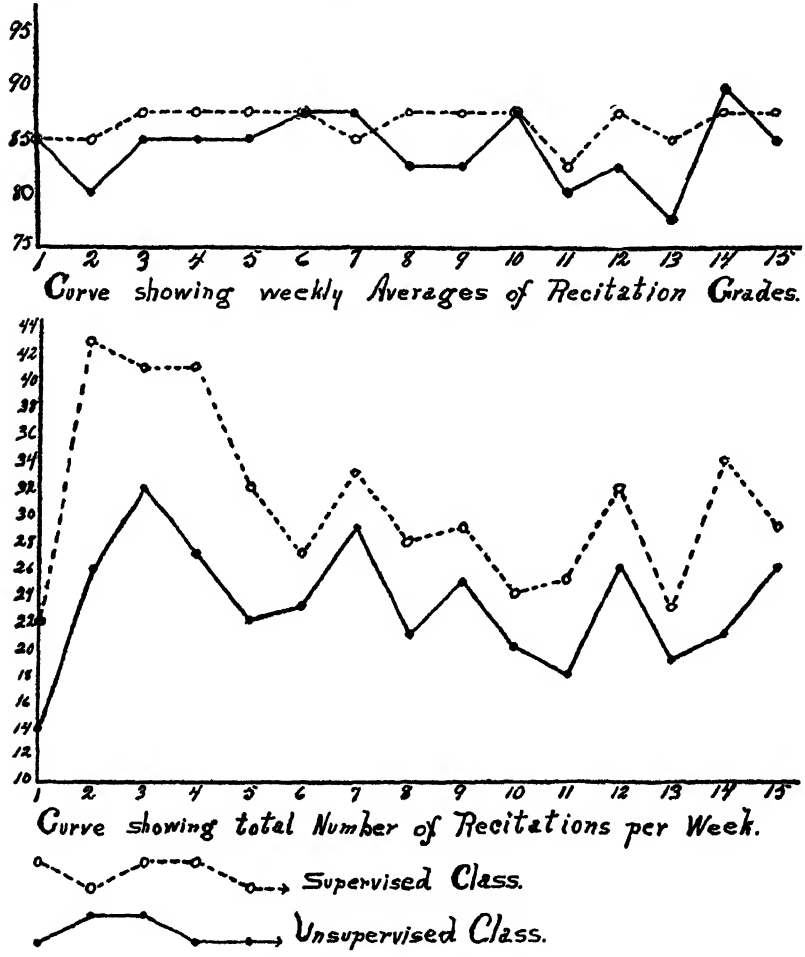
TABLE IV

Kind of Examination	No. of Exam.	Average of Class		Average Number Solved	
		Supervised	Unsupervised	Supervised	Unsupervised
Six-weeks examinations	1	77 3	68 7	4.2	3 55
	2	81.2	80 4	4 3	3 9
Final examination. .	1	92 4	80 1	12 7	12 2
Tests consisting of new materials..... . ..	1	82 4	73 9	4 8	4 4
	2	87 3	70 2	4 8	3 7
	3	77 6	56 2	2.1	2 1
	4	82 8	77 3	4.2	3 8

Thus in each of the six-weeks examinations and the final examination the supervised class excelled in both the average grade and the average number of problems solved. As these examinations covered only the work discussed in recitation, the results indicate that this class had mastered the text better than the unsupervised class. In each of the remaining four tests the average grade of the supervised class was decidedly better than that of the unsupervised class and in only one case did the average number of problems solved by the unsupervised class equal that of the supervised class. As stated above, these tests consisted of problems which were new to both classes and the results therefore indicate that the supervised class was the more able to attack new problems, thus contradicting the arguments of those who believe that supervised study makes the student dependent upon the instructor.

A record of both the amount and the quality of the recitation work was kept. The amount of work was indicated by the number of times students made definite recitations, such as demonstrations and constructions. The quality of the work was indicated by a recitation grade given at the time the recitation was made. A comparison of these records for the two classes is shown in the graphs below. In each curve the horizontal units represent weeks.

The vertical units of the first curve represent weekly averages, while those of the second curve represent the total number of recitations per week. The continuous curves represent the work of the unsupervised class and the dotted curves represent that of the supervised class. An examination of these curves



shows that the supervised class had the higher average for ten of the fifteen weeks. The unsupervised class ranked higher for two weeks and the averages were the same for the other three weeks. The second set of curves shows that the supervised class made the larger number of recitations every week throughout the semester.

There were no failures in the supervised class at the end of the semester, while in the unsupervised class two pupils failed. The pupils' attitude was in favor of the supervised plan.

There is need for similar studies in other subjects.—

Mr. Garrett E. Rickard, principal of the Oakland City High School, Oakland City, Indiana, has prepared the following scheme for testing methods of instruction in history.

In investigating the relative merits of class recitation and supervised study in high-school history teaching, the preliminary problem divides itself logically into three parts: (*a*) the setting up of definite aims or ends to be reached by history teaching; (*b*) the devising in detail of two distinct methods of instruction, one based on class recitation, the other on supervised study; (*c*) the construction of laboratory conditions which shall leave but one variable element, namely, the method of instruction.

A. Aims

1. *To develop the pupil's ability to answer questions based on:*
   (1) Acquisition of the proper concept of new and technical terms.
   (2) Mastery of the subject-matter of the text.
   (3) Interpretation of source material.
   (4) Abstracting collateral reading and connecting it with the outline of the text.
2. *To develop the pupil's ability to act by:*
   (1) Arranging logical outlines and abstracts of the subject-matter of the text.
   (2) Arranging tabulations of time sequences of events and persons, grouped according to some convenient unit, as decades or centuries.
   (3) Drawing maps which shall more or less closely approximate some ideal which the instructor has previously analyzed into its elements.
   (4) Collecting material on a given topic, organizing it logically, citing references and preparing bibliographies.

B. Methods of instruction

1. *Class recitation which involves:*
   (1) On the part of the instructor:
      a) A definite assignment (usually taking the form of questions) involving one or more of the above aims. (Time 5 minutes at the beginning of the period; the following involves the remaining 35 minutes.)

b) A ten-minute examination at the beginning of each recitation on questions chosen at random from the previous day's recitation.
c) Elucidation of obscure points of previous day's assignment.
d) General instruction as to method of procedure. (See A, 2.)
e) Criticisms of pupils' performances, maps, tabulations, etc. (See A, 2.)

(2) On the part of the pupils:
a) Making a memorandum of the assignment. (Time 5 minutes at the beginning of the period. Remaining 35 minutes to be spent as follows:)
b) Answering questions on previous day's assignment.
c) Asking questions on previous day's assignment to clear up obscure points.
d) Submitting maps, manuscripts, etc., and criticizing those of other pupils.

2. *Supervised study which involves:*

(1) On the part of the instructor:
a) A ten-minute examination at the beginning of each day's recitation on questions chosen at random from the previous day's supervised study.
b) Assisting the individual pupil by the aid of reference books or questions to get proper concepts of the new and technical terms of the assignment just made.
c) Assisting the pupil definitely to arrange the outlines, tabulations, or maps of the assignment just made by pointing out to him the elements in his task to be striven for, and criticizing constructively his work.
d) Giving to each pupil an approximately equal amount of time.

(2) On the part of the pupil:
a) Making a memorandum of the assignment. (Time, 5 minutes. The following to occupy the remaining 35 minutes.)
b) Study with the teacher as per above.
c) Independent work with pen, books, and paper on the assignment just made, when he is not being assisted by the teacher.

C. Laboratory conditions

1. Have the whole class study and recite as usual for a given period. (Three weeks will be convenient.)
2. Have the pupils write on a topic discussed on the previous day for ten minutes at the beginning of each period.

3. Grade the papers with one of the following marks: 100–90, 89–80, 79–70 69–60, 59–50, below 49, or in letters, A, B, C, D, E, F.
4. Average each pupil's grade for the period.
5. Rank pupils on the basis of their grades, putting the highest first, the lowest last.
6. Let the odd numbers constitute section A; the even numbers section B.
7. Allot to each section forty minutes of your time.
8. Proceed with section A by the class recitation method (B-1), with section B by the supervised study method (B-2).
9. Give each section the same assignment on the same day.
10. Instructor and pupils should keep an accurate dated record of the assignments.
11. All maps, tabulations, outlines, and reports should be graded as in C-3 above, and filed.
12. Bring both sections together for the same written examination at the close of each month.
13. These papers should be graded as in C-3, and filed.

In accordance with this scheme Mr. Rickard has been testing for the last two months the effect of supervised study. He introduced supervised study into a class in history whose average grades for one month had been found to be slightly lower than the averages of another group of pupils taking the same work. After this class had been subjected to supervised study, its daily average grades became higher than the average grades of the other class.

Thus it seems that all of these three experiments are favorable to supervised study. With supervised study in the high school, the amount of home work to be expected of pupils could probably be lessened, or omitted entirely if the class periods or the school day were lengthened. Even as little as five minutes added to each recitation would mean much to the supervised study classes while the addition of that much time would hardly be felt as a burden by pupils or teachers. There could always remain a certain amount of good home work for the brighter pupils, but the slow pupil would do almost all of his work at school during school hours under guidance of his teachers.

Sometimes objection to supervised study is made on the ground that it would cause additional expense.—

Mr. Minnick argues in his paper that supervised study would not increase the expense of instruction as much as it is supposed, because the

instructor can handle more pupils in a supervised class, because consultation periods could be abandoned and because the decreasing number of failures lessens the number of pupils repeating courses.

A special technique is to be developed for supervised study classes.—

Unless a system is such that the ordinary teacher can use it successfully without too much additional work, it will be of value to a small part of the teaching public. It is comparatively easy to organize supervised study in classes of mathematics, but rather difficult in other subjects. Assuming that the teacher himself has a knowledge of the principles of learning, the two general characteristics of conducting a supervised study period should be to find out what the pupil is thinking in struggling with the assigned lesson and to guide him properly without giving him too much assistance. The various suggestions given by teachers who have introduced supervised study in their classes are summarized in the following:

1. Teachers should take a new attitude toward home work. They should break themselves of the habit of prescribing the regulation amount of home work daily. Pupils cannot be expected to prepare lessons well unless they know definitely what is expected of them. Rather than to assign a lesson of doubtful difficulty and to receive lessons poorly and dishonestly prepared they may omit the home assignment altogether. Home work should have the character of completing the class work of the previous day, not of preparing for the next. This will enable even the slow pupil to apply his time to it with success and profit. Let the pupil struggle with really new work under the supervision of the teacher, but let home work be preceded by enough similar work in the classroom to furnish a pupil a clew to prevent his working in the dark. With this new rôle assigned to home work a change in class methods should follow.

2. The time ordinarily used for recitation should be shortened or omitted altogether. The time gained can then be used for supervised study and for the development of new work. This is the teacher's opportunity to teach pupils how to study. As he watches the pupils at work, instead of ignoring a pupil who is slow and apparently backward, unable to do what some more gifted pupil can easily do, he finds out the difficulty that prevents a normal rate of progress. Perhaps he must go back to the foundation, where the pupil has real knowledge, to make progress with new material possible. False assumptions, false errors,

false methods are corrected as quickly as they appear. By analyzing the habits of study of a pupil his weakness may be discovered and conscious steps be taken to form or strengthen certain habits that need attention. This work should receive most careful attention. Pupils when left to themselves do not appreciate the value of time. In the classroom they can be taught to start a piece of work promptly and to keep at it at a rate of accomplishment not too slow, but not too high to interfere with accuracy and neatness. An economical use of time is the true mode of securing leisure. Ability to select, arrange, or pick out facts according to their value or "method" is a most important factor. Method enables a larger amount of work to be done with satisfaction. The cultivation of undivided attention must be going on always with special emphasis upon effort to retain. One of the most essential habits of study to be developed constantly is the ability to read carefully with understanding, not mechanically. This ability is commonly presupposed. Yet it is often lacking. Let the teacher ask the pupils to retell what they have read. This will make them read with attention and concentration, learn how to skip judiciously, and will fix what they have read in the memory as in no other way.

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NORTH CENTRAL HIGH SCHOOLS

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INTRODUCTION

In view of the remarkable development of the public high school within recent years and the increased demands made upon it, facts pertaining to the organization and administration of high schools are significant. The schools in the North Central states have been subjected to more or less inspection for the past forty years, during which time the accrediting system providing for admission to college by certificate has become almost universal. Through this system the schools of each state have been subjected to more or less definite standardizing pressures. Differences in standards, however, from state to state and indeed within the same state have always been noticeable. In 1895 the North Central Association of Colleges and Secondary Schools was organized with the idea of setting up standards which might be attained by a selected group of schools in a number of states. This association has met with cordial support from the colleges and secondary schools. Today there are nearly 800 schools distributed through the North Central states on the approved list, i.e., the principals of these schools have convinced the Board of Inspectors that the work is up to the standard named by the association.

The annual reports submitted by 667 of these schools for the year 1911–12 have been analyzed with the view of setting forth a body of facts relating to the group of schools on the list for 1912. These schools are distributed in the different states as shown in Table I.

It is to be noted in the foregoing that the number of schools in the different states varies from 15 in North Dakota to 104 in Illinois. For the most part the number of high schools in the various states on the North Central list fairly represents the total distribution of high schools

TABLE I

State	No of Schools	State	No. of Schools
Colorado	30	Missouri	37
Illinois	104	Nebraska	35
Indiana	50	North Dakota	15
Iowa	57	Ohio	97
Michigan	77	Wisconsin	87
Minnesota	58		

of the various types within each state. There are hundreds of small high schools throughout this territory that are accredited only within a single state by the state's own accrediting agency. Some of the differences are, no doubt, due to the fact that some states are more adequately equipped for inspecting these schools than are others, i.e., there are probably many schools not on the North Central list simply because of a lack of enough inspectors to visit them.

SIZE OF SCHOOLS

The actual enrolment of the high school is of importance in connection with the enforcement of standards. It is possible for the enrolment to be so small that the number found in the Senior class who will go to college is insufficient to justify either the high school or college in attempting to coördinate their work. Small enrolment means that classes must be small, which condition quickly places a limit on the number of elective courses or units which can be provided in the high school. On the other hand the small high school may mean a more narrowly selected group of students with a narrower range of interests and abilities.

There is rather wide variation within each state in regard to the enrolment of the approved schools; yet the median enrolment shows definite differences in this particular in the various states. This is shown in Table II.

TABLE II

State	Median Enrolment	State	Median Enrolment
Colorado	206	Missouri	204
Illinois	143	Nebraska	137
Indiana	244	North Dakota	112
Iowa	184	Ohio	215
Michigan	200	Wisconsin	184
Minnesota	140		

An interpretation of this table shows that one-half of the schools on this list in Colorado have an enrolment of 206 or fewer; in Illinois of 143 or fewer; in Indiana of 244 or fewer, etc. The high schools of Indiana, Ohio, Michigan, Colorado, and Missouri on the accredited list are decidedly larger than those in the other states.

Variations in the enrolment of high schools in the different states means variation in regard to the difficulty of conforming to the standards set up by the association. The large high school might have no difficulty in maintaining courses and conditions meeting the requirements for students going to college and at the same time be able to maintain many other courses for students with other interests. In other words, in case the school on this list is so small that a single course is offered, this course must conform to the North Central standard; hence the possibility of the coercive influence of such standards.

Size of cities[1] *supporting these high schools.*—The variation in the size of cities maintaining schools listed for approval by this association is of interest. The high schools of practically all the large cities are on the list; however, one-third of the whole number of approved schools are in towns of 5,000 or less; two-thirds in cities of 10,000 or less. Thus it is seen that the association has been an influential force in the small cities and towns.

TABLE III

State	Median Population	State	Median Population
Colorado	7,500	Missouri	7,500
Illinois	9,250	Nebraska	4,700
Iowa	4,700	North Dakota	3,430
Indiana	9,000	Ohio	8,200
Michigan	8,750	Wisconsin	4,700
Minnesota	5,830		

Table III shows the median size of cities in the various states supporting approved high schools. Rather striking contrasts appear in comparing Illinois with North Dakota or Iowa. The median size of cities in Iowa, Nebraska, and Wisconsin is practically the same. Illinois, Indiana, Michigan, and Ohio seem to belong to another group. Again, it is significant that such a large number of small towns and cities are willing to conform to the prescribed standards.

[1] Throughout the rest of this paper the word "cities" will be used to refer to both towns and cities.

Enrolment and population.—The variation in the size of cities and in the size of high schools is shown in Table IV. The cities are classified as A, B, C, etc., on the basis of population, Class A cities having a population of 2,500 or less; Class B cities having a population of 2,501 to 5,000, and so on.

TABLE IV

COMBINED SUMMARY

Total Enrolment	A Under 2,500	B 2,501 to 5,000	C 5,001 to 7,500	D 7,501 to 10,000	E 10,001 to 15,000	F 15,001 to 50,000	G 50,001 and above	Total
Under 50	4	4	1	...	1	. .	..	10
51 to 75	11	8	2	...	. .	1	3	26
76 to 100	14	20	8	1	2	..	3	50
101 to 125	25	34	16	1	5	2	3	86
126 to 150	12	33	20	4	4	5	.	78
151 to 175	4	25	17	5	1	.	...	52
176 to 200	1	19	11	2	8	.	. .	41
201 to 225	....	4	1	7	3	4	. .....	19
226 to 250	2	10	18	19	9	1	. .	59
251 to 275	.. ...	..	5	4	3	5	2	19
276 to 300	.. .	5	7	10	10	11	1	44
301 to 350	1	. .	4	6	10	11	2	34
351 to 400	.... .	..	1	5	5	8	3	22
401 to 450	. ..	.		3	4	10	....	17
451 to 500	.. ...	.	... ..	. . ..	.	10	4	14
501 to 550	....	. . ..	. ..	...	1	8	2	11
551 to 600	. . .	. . ..	. ..	...	. .	8	1	9
601 to 650	. .	..	. . .	. ..	.... .	3	3	6
651 to 700	. .	. ..	.. ..	.	1	5	1	7
701 to 750	...	.	. ..	.	. .	3	4	7
751 to 800	. .	. .	. . .	.. .	..	1	2	3
801 to 850	. .	..	..	1		1	3	5
851 to 900	.. .	.	.	. ..	. .	1	2	3
901 to 950	.. .	.	... .	..	. .	1	3	4
951 to 1,000	. ....	..	.. ..	..	. ..	. .	2	2
1,001 to 1,050	. .	.	. . ..	. ..	... .	1	3	4
1,051 to 1,100	. .	. .	. .	.	. .	.	1	1
1,101 to 1,150	...	.	. ..	1	. ....	. .	2	3
1,151 to 1,200	..	.. .	...	...	. ..	.	2	2
1,201 to 1,250	.	...	.	. ...	..	. .	5	5
1,251 to 1,300	. .	...	.. ...	..	. . .	. ..	2	2
1,301 to 1,350	. ....	.. ..	. ..	.	.	.	1	1
1,351 to 1,400	..	..	.. ..	.. ..	.	. ..	1	1
1,401 to 1,450	. ...	... .	. .	..		. .	.....	....
1,451 to 1,500	. .	.	...		.	3	3	
1,501 to 1,600	. ...	. .. .	... .	. ..	.	1	3	4
1,601 to 1,700			. ....	. ...	.. .	.	1	1
1,701 to 1,800	....	. ...	. . ..	.. ...	. .. .	.	3	3
1,801 to 1,900	.. ...	.. ..	.. ..	. ..	.. .	. ....	1	1
1,901	..	. .	..	.. . .	. .	.	.... .	. .. ..
	74	162	111	69	67	101	73	667

This table should be read thus: Of the high schools enrolling fewer than 51 pupils four were in cities with a population of 2,500 or under; four in cities of 2,501 to 5,000 population; one in a city of 5,001 to 7,500 population, etc. An analysis of this table, by reading from left to right, brings out the striking variation in the size of the city in which is found a given-sized high school. For example, high schools with an enrolment of 101 to 125 are found in towns and cities of practically all sizes. Reading from the top to the bottom, one can see the wide variation in the size of high schools in cities of the same class. For example, cities of 2,500 and under are supporting accredited high schools varying in size from 50 or less to 301–350; cities of 7,501 to 10,000 have high schools as small as 100 and as large as 850. It is seen that one-eighth of all of these schools enrol 100 or fewer students; one-half, 200 or fewer; three-fourths, fewer than 351. The middle 50 per cent of the schools enrol from 125 to 350 pupils. Ought not these central tendencies and these variations be considered in determining standards for accrediting?

The material presented in Table IV is of value in comparing cities in relation to high-school enrolment and population. In case of a desire to compare the high-school enrolment of a particular city with the enrolment in other cities of the same class, the following plan might be carried out. Let us say that the city has a population of 4,500 and an enrolment of 100. Now referring to Table IV above, we find that the city is in class B. By running down the column headed "Total Enrolment" to 76–100, then to the right, to column B, it is found that 20 cities in this class have an enrolment of 76 to 100; thus other cities of this class have the same sized high schools. However, when it is noted that there are data for 162 high schools in cities of this class, it becomes important to find its relation to the whole group of schools. The answer is 130, or 80 per cent of the cities show a larger enrolment while only 7 per cent show a smaller enrolment. As a means of ready reference the following table of medians might be used. This table shows the median enrolment for each class of cities.

Class	A	B	C	D	E	F	G
Median enrolment.....	109	162	175	243	250	450	841
No. cases....	74	162	111	69	67	101	73

Number of teachers and enrolment.—One index of the adequacy of the provision made for the high school in any community is the number of

TABLE V

Correlation of Teachers and Enrolments

Total No. of Teachers	50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300	301 to 350	351 to 400	401 to 450	451 to 500	501 to 550	551 to 600	601 to 650	651 to 700	701 to 750	751 to 800	801 to 900	901 to 1,000 and Over	Total
4	15	32	30	1															78
5–6	12	56	55	28	7		1												159
7–8	2	16	34	32	33	7													124
9–10	4	4	8	12	22	11	6												69
12		2	1	8	10	16	10	2	2	1									52
14	1		1		4	7	8	5	4										30
16		2	1		3	3	5	4	5	1		1							25
18		1				4	4	4	3	4	1		1						22
20							1	2	2	4	2	1							12
22			1					2	1	2		3		2	2				13
24								1		3	2	1	1						8
26												1	1	1	1				9
28												1		1		3			6
30												1			1	2			4
32									1							1	1	1	3
34																2		2	4
36															2	1	2		3
38																	1	2	3
40																			4
42																			2
44																			2
46																			3
48																			3
50										1									2
52																			5
58																			1
60																			2
62																			1
64																			1
66																			3
68																			1
75																			1
78																			1
100																			0
	34	113	131	81	79	48	35	20	18	16	6	9	6	6	8	8	8	32	660
Median teachers	4	5	5	7	8	21	12	16	15	20	20	24	25	25	28	36	32	50	

teachers employed. Inasmuch as the North Central Association refuses to approve a school with fewer than four teachers, this is the smallest number of teachers reported. However, wide variation exists in practice in regard to the number of teachers in these schools. The range is from 4 to 100 and above, in schools enrolling fewer than 50 to 1,000 and over. "Four-teacher" schools vary in enrolment from 50 or less up to 151–200; "six-teacher" schools vary from 50 or less to 301–350. The complete distribution is given in Table V.

From the foregoing table it is seen that wide variation exists in regard to the number of teachers employed and the actual size of the high school. For example, of the 34 high schools enrolling 50 or fewer students the number of teachers varies from 4 to 13 or 14. Again, reading from left to right, 9- to 10-teacher schools are found enrolling as few as 50 pupils, and as many as 300 to 350 pupils. Certainly the opportunity for work in the schools represented by these extremes is not the same. Standards that could be met readily in the school with 10 teachers and 50 pupils might be impossible in the schools with the same number of teachers and 350 pupils.

Differences from state to state.—Certain differences in the size of school represented by the number of teachers appears in an analysis of the material in the different states. Table VI shows the median number of teachers in the different states.

TABLE VI

State	Median No. of Teachers	State	Median No. of Teachers
Colorado	9	Missouri	6
Illinois	9	Nebraska	5
Indiana	10	North Dakota	7
Iowa	7	Ohio	8
Michigan	8	Wisconsin	6
Minnesota	8		

It is seen that the schools in Indiana are relatively large while the schools in Nebraska are relatively small.

In order to bring out more clearly the differences in the various states, Table VII has been prepared.

The meaning of this table becomes clear when read as follows: In Colorado the six-teacher schools have a median enrolment of 150; the

eight-teacher schools have a median enrolment of 208. In Illinois the six-teacher schools have a median enrolment of 100 and the eight-teacher schools, an enrolment of 133, etc. These figures indicate that the different states are meeting the problem of the distribution of the number of pupils per teacher on somewhat different lines.

TABLE VII

State	Median Enrolment	6	8
		No. of Teachers	
Colorado	" "	150	208
Illinois	" "	100	133
Indiana	" "	140	250
Iowa	" "	100	125
Michigan	" "	106	120
Minnesota	" "	75	110
Missouri	" "	110	175
Nebraska	" "	87	137
North Dakota	" "	75	125
Ohio	" "	175	225
Wisconsin	" "	150	196

In view of these differences in enrolment for the same sized teaching force it would seem that the outside standardizing agencies would affect these schools with widely varying pressures. Is it not probable that many criticisms of the pressures brought to bear by accrediting agencies are due to just this variation? Surely some schools find it much more of an effort to conform to the North Central Association standards than others. It would be of interest to know more about the comparative results attained in the schools of Ohio and Indiana with relatively large numbers of pupils per "six-" and "eight-teacher" school, as compared with Iowa and Michigan with relatively small numbers of pupils.

Standard ratio of teacher to enrolment.—Table VIII, showing the median number of teachers per enrolment unit, should enable school authorities to determine quickly the status of a particular school in this connection.

Average number of students per teacher.—Another way to consider the provision which different communities make for their schools is by dividing the total number of students by the total number of teachers in the high school (taken irrespective of the number of recitations taught by

TABLE VIII

	Enrolments of 50 or less	51 100	101 150	151 200	201 250	251 300	301 350	351 400	401 450
Median number teachers	4	5	5	7	8	11	12	16	15

	Enrolments 451 500	501 550	551 600	601 650	651 700	701 750	751 800	801 850	851 1,000 and Over
Median number teachers	20	20	24	25	25	28	36	32	50

the teacher). The average number of pupils per teacher calculated on this basis varies from as low as 5 pupils per teacher to as high as 50 pupils per teacher. Table IX shows this variation.

TABLE IX

Total No. Students per Teacher	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
5	1	5	2	.....	1	.....	.....
10	15	14	5	1	2	2	7
15	15	23	21	10	8	11	3
20	24	51	37	20	23	34	9
25	16	44	30	20	23	30	28
30	2	20	9	12	8	16	12
35	.....	3	5	5	1	3	1
50	1	.....	.....	.....	.....	2	1
No. cases	74	160	109	68	66	98	61
Median	20	20	20	20	20	20	25

This table becomes clear when read thus: Of the 74 cities of 2,500 in population and under, one city employs a high-school teacher for every 5 pupils; 15 employ one teacher for every 10 pupils; 24 employ one teacher for every 20 pupils; 16 employ one teacher for every 25 pupils; two cities employ one teacher for every 30 pupils, and one city employs one teacher for every 50 pupils.

It is noteworthy that no clear correlation exists between the average number of students per teacher and the size of city; small cities adhere quite as closely to the central tendency in this particular as do the larger

cities until the population reaches 50,000; e.g., the employment of one teacher for every ten pupils is found in cities of every class. The median number of pupils per teacher, however, for each class is identical in all cities below 50,000 population.

This table is of interest in that it shows a fairly well standardized tendency in this particular. However, within the variations set forth it would seem probable that such striking differences in practice would be accompanied with equally striking differences in school achievement. The opportunity for individual contact between teacher and pupil is certainly far different in a city with an average of 5 or 10 pupils per teacher than in a city with an average of 30 to 50 pupils per teacher. Such differences surely call for different schemes of organization and administration if similar results are to be attained. In the face of such differences there can be but little doubt that the pressures of outside standardizing agencies fall with unequal intensity on the different schools. It would be of great administrative value to have a quantitative measure of the differences in achievements actually attained in these schools. If the results are the same when the ratio is 1 to 30 as it is where the ratio is from 1 to 10 in towns of the same class, we should know it.

ORGANIZATION

Number of daily recitations.—The number of daily recitations which a school provides is one measure of the flexibility or adaptability of the curriculum to the needs of the children. The four-year high school with a single curriculum and no electives with each class reciting daily will ordinarily offer 16 recitations per day. If the students are to be given

TABLE X

State	Range of No of Recitations	Median No of Recitations per Day
Colorado	15–100	40
Illinois	15–195	38
Indiana	15–155	50
Iowa	15–175	39
Michigan	20–150	38
Minnesota	15–230	38
Missouri	15–130	35
Nebraska	15–345	25
North Dakota	15– 75	25
Ohio	15–235	38
Wisconsin	15–105	35

a choice, additional recitations must be provided. A wide range of electives in the small high school is unusual, partly because of the fact that a small enrolment means a narrower range of individual differences and partly because of the distaste on the part of the pupils and the teachers for the very small classes which necessarily follow, e.g., a Senior group of ten pupils does not permit of very many elective divisions. The exact distribution of the range in the number of recitations per day in the different states is given in Table X. This table should be read thus: In Colorado the number of recitations offered in the high schools on this list ranges from 15 to 100, with a median of 40; in Illinois the range is from 15 to 195, with a median of 38 and so on. The median number in Indiana is twice as large as Nebraska or North Dakota.

The minimum of 15 recitations found in practically all states indicates the effect of the college-entrance requirement of 15 units. A study of these figures suggests again that some of the schools are barely able to meet the North Central standard, while others, so far as the number of recitations is concerned, might offer a wide range of courses to suit many different tastes and abilities.

Relation between number of recitations and size of city.—It is important to know the distribution of the number of recitations offered in relationship to the population within the territory. Table XI shows this relationship and the variation in number of recitations offered in cities of the same size; for example, of the 71 cities of 2,500 population or under maintaining high schools on this list, two have 15 recitations; thirteen, 16 to 20 recitations; seventy-six, 21 to 25 recitations; while one maintains 46 to 50 recitations. Similar variations are to be noted in the cities of each class. Reading from left to right, schools of 21 to 25 recitations are being maintained in cities of every class.

Half of all of the high schools represented have more than 35 recitations per day. The conflict between the so-called demands of the community and the demands of the standardizing agencies present a much less difficult problem for solution in the high school having many recitations, than in the school having few recitations. It may be seen that hundreds of these cities might be able to offer widely diversified courses of study without increasing the number of daily recitations at all. The factor of imitation, however, is so strong that pupils tend to elect the same courses so that no doubt thousands of these recitations are merely duplicate "sections" in the same subject.

TABLE XI

No Daily Recitations per School	A Under 2,500	B 2,501 to 5,000	C 5,001 to 7,500	D 7,501 to 10,000	E 10,001 to 15,000	F 15,001 to 50,000	G 50,001 and Over
15–....	2	4	1				
16– 20....	13	1	4	1	2		2
21– 25....	26	31	12	1	2	2	2
26– 30	11	44	17	4	2	2	
31– 35.	9	30	23	5	5	4	1
36– 40.	5	24	11	8	7	1	1
41– 45.	4	9	11	6	7	8	
46– 50....	1	3	12	10	7	1	3
51– 55....		3	4	8	5	7	
56– 60.		1	4	2	6	6	1
61– 65....			1	3	6	3	2
66– 70....				2	4	5	
71– 75....				4	1	7	1
76– 80....				2	1	3	
81– 85....				1	3	3	
86– 90....					1	5	
91– 95....					1	3	1
96–100....						4	1
101–105....						4	
106–110....					1		
111–115....							2
116–120....						1	
121–130.						4	1
131–140....						2	
141–150....						1	4
151–175....							1
176–190....						1	1
191–200....							3
201–225....							4
226–345....							1
	71	150	100	57	61	77	32

Median for all—35.

Table XII shows the standard number of recitations offered in the towns of various sizes (based on medians).

TABLE XII

STANDARD NUMBER OF RECITATIONS BASED ON POPULATION

	Class of Town						
	A	B	C	D	E	F	G
No. of cases....	71	150	100	57	61	77	32
Median No. Daily Recitations ...	23	29	34	47	49	70	107

Number of daily recitations taught by the teachers.—In view of the standard set up by the North Central Association recommending that no teacher teach more than five recitations a day and prohibiting a teacher from teaching more than six recitations a day, it is interesting to note the wide variations that exist in the actual number taught. Table XIII

TABLE XIII

Total No. of Daily Recitations	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total
1	7	24	16	12	15	19	6	100
2	12	23	29	11	25	33	17	150
3	21	48	38	20	33	73	22	265
4	62	111	132	40	76	156	44	621
5	135	341	273	198	263	567	419	2,196
6	121	348	216	171	208	249	204	1,515
7	1	5	4	5	2	10	2	29
8	....	1	....	1	3	1	....	6
9	..	....	....	....	....	1	....	1
	359	901	708	458	626	1,109	714	4,875

shows this variation, distributed for population of cities. This table becomes clear when read as follows: There are seven teachers in cities of 2,500 or under who have one recitation only; twelve with two recitations only; twenty-one with three recitations only, etc. It is to be noted that of the 359 cases in cities of this population the range of recitation taught by teachers is from one to seven. In cities of 2,500 to 5,000 the range is from one to eight, etc. The numbers in the right-hand column indicate the wide range of variation. There seems to be no great difference in this particular in the large and small cities, as the small city seems to be almost as likely to provide for a small number of daily recitations for each teacher as does the large city. The most frequent arrangement is for each teacher to teach five recitations, yet it should be noted that there are 1,136 teachers with fewer than five recitations and 1,541 teachers with more than five recitations. Indeed there are 36 teachers with more than six recitations, which is *a violation of the standard of the Association.* The exact number of recitations that each teacher should be asked to teach is still an unsolved problem. This is a question of importance not only on account of the financial cost involved, but because of its educational implication. The wide variation in practice suggests the desirability of comparing results attained by the systems using different plans.

The superintendent as a teacher.—Considerable interest has been shown in regard to the exact amount of teaching done by the superintendent. Table XIV shows the extent of teaching on the part of the superintendents throughout the states (Indiana not included in this table). It is to be noted that slightly over half of the 496 superintendents report the teaching of one or more recitations per day in the high school.

TABLE XIV

Total	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
0	6	28	39	36	42	54	26
1	12	40	28	6	6	5	.
2	22	47	14	3	3	4	1
3	18	12	4	.	.	.	.
4	9	9	6	3	2	.	2
5	1	2	1	.	1	1	1
6	.	2	.	.	.	.	.
	68	140	92	48	54	64	30
Percentages	91	80	57	25	32	15	13

In the 86 cities of 2,500 or under reporting, 12 superintendents teach one recitation, 22 teach 2 recitations, 18 teach 3 recitations, 9 teach 4, and 1 teaches 5, recitations. The same variation exists in cities of 2,501 to 5,000 population. So that there seems to be no definite policy in connection with the exact number of recitations to be taught each day by the superintendent in the smaller cities. As the cities grow larger a decreasing percentage of superintendents teach, as is shown by the decrease from 91 per cent to 13 per cent. At least two questions are involved in connection with the teaching done by the superintendent. One is the fact that the time which is given to teaching of necessity limits the amount of supervision possible in the high school or in the elementary school. This is of significance in view of the fact that such a large number of teachers are inexperienced. Surely the time spent in teaching by the superintendent is an important limitation in the matter of training teachers in service. On the other hand, the fact that superintendents do teach in the high school gives them a certain intimate contact with the high school which should be of value.

State differences.—Certain variations are to be observed in the percentage of superintendents who teach in the different states.

TABLE XV

State	Percentage of Superintendents Who Teach	State	Percentage of Superintendents Who Teach
Colorado	46	Missouri	35
Illinois	50	Nebraska	57
Iowa	40	North Dakota	73
Michigan	34	Ohio	25
Minnesota	48	Wisconsin	57

These differences in policy parallel somewhat closely the differences in the size of the high school. A larger percentage of superintendents teach in states with small high schools than in states with large high schools.

Length of recitation period.—A minimum standard of "40 minutes in the clear" for each recitation is set up by the Association. Wide variations exist in actual practice. Table XVI shows the length of the recitation period in minutes distributed for the various sized cities. Two well-defined modes appear in this table, 40 minutes and 45 minutes. There seems to be no relation between the size of cities and the length of recitation period as the central tendency and the variations are evenly distributed throughout the different-sized cities. Evidently factors

TABLE XVI

Total Length in Minutes	A	B	C	D	E	F	G
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Above
35	1						
39		1					
40	42	88	58	27	25	42	23
41		1		1			
42	5		1	1	1	2	5
42½	1	4	2	1			
43	2	10		2	1	1	7
44		2	2		1		2
45	20	56	47	38	37	51	29
47½						2	3
50	1						3
53					1		
55	1		1		1	1	1
60						1	
80			1				
	73	162	112	70	67	101	73

other than the pressure of the standards set up by the Association are at work, because over half of the cities provide a longer period. No striking differences are to be found among the different states in this particular.

Large classes.—The Association has sought to discourage large classes by setting thirty in a class as the maximum to be allowed. Many schools have violated this standard; the actual extent of this violation is shown in Table XVII. This table should be read thus: In cities of 2,500

TABLE XVII

Total No Classes with Over 30 Pupils	A Under 2,500	B 2,501 to 5,000	C 5,001 to 7,500	D 7,501 to 10,000	E 10,001 to 15,000	F 15,001 to 50,000	G 50,001 and Above	Total
0	55	115	69	49	36	49	30	403
1	7	18	17	9	9	7	3	70
2	7	13	20	5	7	13	7	72
3	2	3	5	1	6	14	3	33
4		1	1	1	3	4	1	11
5					3	6	3	12
6		1		2	2	2	2	9
7		2			1	1	2	6
8				1			1	2
9							1	1
10							2	1
11							1	2
12							1	1
13		1					1	1
14						1	1	2
15						1	1	2
20							2	2
22							1	2
30							1	1
31							1	1
32							1	1
91							1	1
116							1	1
	71	154	112	68	67	98	68	638

population or under, 55 have no classes enrolling more than 30 pupils; 7 have one class with more than 30; 7 have 2 classes with more than 30; 2 have 3 classes with more than 30. Cities of all sizes violate this standard, but the large cities are the worst offenders. Summarizing, it is seen that slightly over one-third of the cities violate the standard by having from 1 to 116 classes enrolling more than 30 pupils. In view of

this situation it would seem wise to do one of two things—either abolish the standard or revise it.

Length of school year.—The North Central Association makes a requirement that the school year shall be at least 36 weeks in length. Table XVIII shows the distribution in this particular. This table should

TABLE XVIII

Total No. Weeks	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
32		1		1			
36	58	111	61	44	27	30	7
37				1			1
38	12	33	34	6	25	41	21
39							
40	4	16	16	17	15	30	43(42–1)
	74	161	112	69	67	101	73

be read thus: Of the 74 cities with a population of 2,500 and under, 58 have a 36 weeks' term 12, have a 38 weeks' term, and four have a 40 weeks' term, etc. Only two schools fail to reach the standard of the Association. On the other hand, over 300 schools are maintained for a period longer than required by the Association. Three well-defined modes appear, 36, 38, and 40 weeks. This is probably due to the fact that people customarily think of the school year in terms of months and half-months, rather than terms of weeks; and payments are usually made on the basis of an even number of weeks.

INSTRUCTIONAL STAFF

Sex of superintendents.—In view of the increase in the number of women employed in the public schools, it is important to know the extent to which women have been selected to fill the executive positions in the schools of the North Central Association list. Table XIX shows the

TABLE XIX

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male	70	159	108	68	62	95	66
Female	3	1	1		1	3	1
	73	160	109	68	63	98	67

distribution of the superintendents as to sex. This table should be read as follows: Of the 73 cities of 2,500 or under, 70 of the superintendents are men and 3 are women, etc. Out of the 637 superintendencies listed for sex, only 10 are filled by women.

Sex of high-school principals.—High-school principalships have attracted women in greater numbers than have city-school superintendencies. Table XX shows the exact distribution of high-school principalships as to sex. This table should be read as follows: Of the 73

TABLE XX

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male	41	107	89	57	57	92	65
Female	32	50	17	11	8	5	2
	73	157	106	68	65	97	67

cities with a population of 2,500 or under, 41 employ male, and 32 employ female principals. Of the cities of 2,501 to 5,000 population, 107 employ male principals and 50 employ female principals. Out of a total of 643 principalships, 125 women are employed, which is in striking contrast to the number of women employed as superintendents, in the same cities. However, certain differences are to be noted in the cities of the different sizes; the small city of 2,500 or under employs more than half of all of the women principals at work in these schools. Table XXI shows the percentage of women employed as principals in the different-sized cities. This table should be read thus: In cities of 2,500 or under, 43 per cent of the principals are women, etc. From these figures it would seem that the positions of larger responsibility as measured by the population of the city in which the high school is located are not filled by women. This may be due to the attitude of the women themselves or to the attitude of the communities.

TABLE XXI

	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Percentage women principals	43	31	16	16	12	5	3

Sex of high-school teachers.—The high schools in this territory have attracted women as teachers in far greater numbers than as principals. The exact extent of this is shown in Table XXII. This table becomes

TABLE XXII

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male.....	71	274	220	215	241	524	406
Female.....	292	646	561	414	444	887	708
	363	920	781	629	685	1,411	1,114

clear when read as follows: Of the 363 teachers employed in cities of 2,500 or under, 71 are men and 392 are women; of the 922 teachers employed in towns of 2,501 to 5,000, 226 are men and 646 are women, etc.

Out of a total of 6,303 teachers, 69 per cent are women. However, differences are to be noted here also in connection with the larger percentage in the smaller cities as is shown by Table XXIII. This table should be read thus: In cities of 2,500 or less 80 per cent of the teachers are women, etc. Summarizing the data for sex distribution of superintendents, high-school principals, and high-school teachers it can be said that at present the women are rarely to be found in the field of supervision; that about one-fourth of the principalships chiefly in the smaller towns are filled by women; and that over two-thirds of the teaching positions are filled by women, although the proportion of women is considerably higher in the smaller than in the larger cities.

TABLE XXIII

	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Percentage of women.....	80	70	71	66	65	62	63

Salaries of superintendents in schools represented.—Table XXIV shows the salaries paid to the superintendents of the schools distributed on a basis of population of cities concerned. In the 66 cities of 2,500 and under reporting on this item there is a wide variation. Three cities pay

TABLE XXIV

Total Salary of Superintendents	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
$1,000					1		
$1,001–$1,100	3						
1,101– 1,200	6	3					
1,201– 1,300	7	11	5				
1,301– 1,400	10	14	3			1	
1,401– 1,500	19	25	8	1	1		
1,501– 1,600	8	29	12	2	2		
1,601– 1,700	5	20	9	3	2		
1,701– 1,800	2	15	29	13	2	1	
1,801– 1,900		5	3	5			
1,901– 2,000	3	8	16	19	13	5	
2,001– 2,100		4	2	4	6	4	
2,101– 2,200	1	2	4	5	8	11	
2,201– 2,300	1			1	4	3	1
2,301– 2,400				1	2	5	
2,401– 2,500			2	4	3	14	
2,501– 2,600			1		1	8	
2,601– 2,700	1			1	4	6	
2,701– 2,800		1	1		2	3	
2,801– 2,900						1	
2,901– 3,000		1		1	5	13	5
3,001– 3,200						1	
3,201– 3,300						6	1
3,301– 3,500				2		2	4
3,501– 4,000							4
4,001– 4,500							3
4,501– 5,000							11
5,001– 5,800							2
5,801– 6,000							16
6,001– 7,000							5
7,001–10,000							1
Median	66 $1,500*	138 $1,600	95 $1,800	62 $2,000	56 $2,500	84 $5,000	53

*From $1,401 to $1,500, etc.

$1,001 to $1,100; six, $1,101 to $1,200; seven, $1,201 to $1,300; while one pays $2,700. The same variation is found in the larger cities.

Salaries of principals.—Table XXV shows the salaries paid to the high-school principal, distributed on a basis of population of city concerned. (Data are lacking for Colorado.) In the 67 towns of 2,500 or under reporting on this item there is a wide variation. Four cities pay $601 to $650; three, $651 to $700; six, $701 to $750; while one pays $2,000. The same variation is found in the larger cities.

TABLE XXV

Total Salary of Principals	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
$ 600						1	
$ 601–$ 650	4			1			
651– 700	3	7	2				
701– 750	6	11	1				
751– 800	16	13	5		1		
801– 850	4	5	3				
851– 900	7	18	7	2	1		
901– 950	1	3	1				
951– 1,000	5	19	12	1	2		
1,001– 1,050		1	5	1			
1,051– 1,100	2	13	14	8	3		1
1,101– 1,150		1			1		
1,151– 1,200	5	12	25	13	10	1	1
1,201– 1,250			3	2	2		
1,251– 1,300	1	4	7	12	7	1	
1,301– 1,400	4	2	2	7	7	8	1
1,401– 1,500	6	7	1	7	8	12	
1,501– 1,600		7	2	2	5	13	2
1,601– 1,700	2	7	3			5	
1,701– 1,800	1	7	4	1	5	15	2
1,801– 1,900		1		3	1	5	2
1,901– 2,000	1	2	3		3	15	2
2,001– 2,100				3		2	1
2,101– 2,200		1	1	1		5	6
2,201– 2,300			1		1	1	
2,301– 2,400						1	3
2,401– 2,500						5	3
2,501– 2,600							1
2,601– 2,700		1	1				
2,701– 2,800							1
2,801– 2,900							2
2,901– 3,000			1			1	24
3,001– 3,500				1		3	8
3,501– 4,000			1				2
4,001– 4,500							
4,501– 5,000							
	67	142	105	63	57	94	62
Median	$850*	$1,000	$1,100	$1,300	$1,400	$1,800	$3,000

*From $801 to $850, etc.

Maximum salary of teachers.—Table XXVI shows the maximum salaries paid to the high-school teachers, distributed on a basis of population of cities concerned. (Data for Colorado are lacking.) In the 70 cities of 2,500 population or under there is a wide variation in maximum

TABLE XXVI

Total Maximum Salary	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
$ 500			1				
$ 501–$ 550	2	3					
551– 600	2	6	2		2		
601– 650	10	13	8	1			
651– 700	11	17	8	2			
701– 750	13	35	11	3	5		
751– 800	10	17	20	4	5	1	
801– 850	7	14	10	8	2	1	
851– 900	3	16	11	13	7	9	
901– 950	1	5	3	5	1	7	
951– 1,000	4	6	15	16	10	13	1
1,001– 1,050			2			4	
1,051– 1,100	1	3	6	3	8	7	2
1,101– 1,150		1			1	3	
1,151– 1,200	4	2	4	3	7	11	5
1,201– 1,250	1	1	1	2	2	1	
1,251– 1,300			1	3	2	11	2
1,301– 1,400		1	1		3	11	6
1,401– 1,500		2	1		2	7	9
1,501– 1,600				3	1	1	7
1,601– 1,700					2	2	1
1,701– 1,800				1	1	4	7
1,801– 1,900							3
1,901– 2,000	1	1				2	9
2,001– 2,100							5
2,101– 2,200							3
2,201– 2,300							2
2,301– 2,400							1
2,401– 2,500							1
2,501– 2,600							
	70	143	100	67	61	95	64
Median salary	$750*	$750	$850	$950	$1,100	$1,150	$1,600

*From $701 to $750, etc.

salary paid. Ten cities pay a maximum salary of $501 to $550; ten, $551 to $600; ten, $601 to $650; while one pays $2,000. Similar variations are found in the larger cities. Of the cities of 50,000 or over the maximum varies from $1,000 to $2,500.

Minimum salary of teachers.—Table XXVII shows the minimum salary paid to the high-school teachers, distributed on the basis of cities concerned. (Data for Colorado are not included.)

In the 70 cities of 2,500 population and under, there is a wide variation in the minimum salary paid. Thirteen cities pay not less than

TABLE XXVII

Total Minimum Salary	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
$ 300.						1	
$ 301-$ 450		5					
451- 500	13	11	4	4	1	2	1
501- 550	21	24	18	6	4	4	
551- 600	12	41	22	11	11	8	5
601- 650	10	28	26	9	12	10	2
651- 700	10	14	19	13	13	23	7
701- 750	2	10	11	15	10	18	10
751- 800	1	3	1	4	4	17	9
801- 850	1	4			3	5	7
851- 900		2	4	2	1	2	5
901- 950				1	1		
951- 1,000		2				2	11
1,001- 1,050						1	
1,051- 1,100							1
1,101- 1,200			1				1
1,201- 1,300		1					
Median salary.	70 $600*	145 $600	106 $650	65 $700	60 $700	93 $700	59 $800

*From $551 to $600, etc.

$500; 21 pay not less than $501 to $550; 12 pay not less than $551 to $600; while one city pays not less than $801 to $850. The same variation is to be noted in the larger cities. For example, cities of 50,000 or over have a minimum salary as low as $500 and as high as $1,200.

A summary of the median salaries shown in the foregoing tables brings out the salary differences in a striking manner (Table XXVIII). This table should be read thus: In the cities of 2,500 or under, the

TABLE XXVIII

	Class of City						
	A	B	C	D	E	F	G
Median salary of superintendent	$1,500*	$1,600	$1,800	$2,000	$2,000	$2,500	$5,000
Median salary of high-school principals	850*	1,000	1,100	1,300	1,400	1,800	3,000
Median maximum salary of high-school teachers	750*	750	850	950	1,100	1,150	1,600
Median minimum salary of high-school teachers	600*	600	650	700	700	700	800

*In the $1,500 group, etc.

median salary of the superintendent is $1,401 to $1,500; the median salary of the high-school principal is $801 to $850; the median maximum salary of the high-school teacher is $701 to $750; the median minimum salary of the high-school teacher is $551 to $600, etc.

Comparison between the minimum and maximum salaries of the teachers and the high-school principals brings out the fact that there is less difference in the small cities than in the large cities. The small city offers fewer chances for a high salary reward in going from a minimum salary to a maximum salary. The median increase from minimum to maximum in the small city is only 20 per cent, while in the large city the increase is 100 per cent. The opportunity for a high salary in case of a change from a teaching position to a principalship or to a superintendency is likewise very much less in the small community. Despite the fact that the minimum salary of the large city is only slightly higher than in the small city, the teacher who goes to the large town has a very much better chance for promotion to higher salaries, either as teacher or as an executive. These facts no doubt contribute to the difference in experience and tenure which exists in the large cities and in the small cities. Increase in salary seems to be gained by a shift from small city to large city in each type of educational activity represented above, as there is a positive correlation with salary and size of town. It would be difficult to justify this procedure in view of the actual needs of the schools or the difficulty of the tasks. The small community has, within recent years, been buying the best in the way of school buildings and library equipment. It is possible that the difference in salaries could be so adjusted as to offer such inducements to the ambitious beginning teachers that they would not be constantly drawn off to the larger cities. Something might be said in favor of the French plan whereby the difference in salaries between the large and small community is supposed to be about enough to offset the differences in living expense, such as rentals and taxes.

Total experience of the high-school teacher.—The total experience of the high-school teachers in the best high schools in this territory is of significance on account of the fact that it is assumed that a teacher becomes proficient largely by experience. Therefore, it is important to know the extent of experience in order that we may know something of the amount of proficiency we have a right to expect.

TABLE XXIX

Total No Years	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1	72	172	135	117	84	192	91
2	84	153	122	77	75	114	56
3	61	121	84	78	66	131	52
4	57	102	89	62	69	122	83
5	36	64	65	48	60	121	74
6	8	79	58	33	48	98	59
7	17	54	62	40	41	84	65
8	23	45	30	21	36	80	54
9	17	28	42	30	29	59	45
10	14	44	36	24	28	60	52
11	10	28	33	15	24	44	46
12	10	36	21	16	5	27	30
13	7	20	22	11	11	36	38
14	4	15	21	12	15	29	42
15	7	24	13	15	19	27	37
16	9	17	14	8	10	20	25
17	2	11	7	9	7	14	32
18	7	9	14	10	11	24	28
19	2	16	7	5	1	10	15
20	2	16	9	10	12	18	21
21	3	13	8	4	9	8	18
22	.....	7	5	5	6	13	17
23	2	3	2	8	4	12	8
24	4	5	7	4	2	7	13
25	.....	5	3	5	7	10	14
26	.....	13	4	5	9	8	8
27	4	3	4	2	6	4	15
28	2	4	.....	1	1	7	5
29	.....	3	4	3	2	2	1
30	.....	.....	4	3	4	4	7
31	1	3	.....	4	2	2	7
32	.....	3	.....	1	1	5	4
33	.....	.....	2	.....	.....	5	7
34	.....	3	5	.....	.....	.....	5
35	.....	1	1	.....	1	4	5
36	.....	1	2	1	.....	2	9
37	.....	.....	1	2	.....	4	.....
38	1	1	1	.....	2	1	1
39	.....	1	.....	.....	1	2	2
40	.....	1	.....	.....	1	.....	1
41	.....	2	1	.....	.....	.....	5
43	.....	.....	2	1	.....	.....	1
47	.....	.....	.....	.....	.....	.....	1
49	.....	.....	.....	.....	.....	1	.....
50	.....	.....	.....	.....	.....	.....	1
52	.....	.....	.....	.....	.....	.....	1
56	.....	.....	.....	.....	.....	1	.....
	466	1,172	940	690	709	1,512	1,111

Table XXIX shows the distribution of the number of teachers in relation to the total number of years' experience in teaching (irrespective of the type of school in which experience was gained). This table should be read as follows: Of the 466 teachers in cities of 2,500 or under, 72 have had one year or less of experience; 84, two years of experience; 61, three years' experience, etc. These figures reveal the wide variation that exists in the matter of the total number of years of experience in teaching.

The immaturity and lack of wide experience is shown by the fact that 13 per cent of these teachers have had one year's experience; 20 per cent have had two years' experience or less; 29 per cent have had three years' experience or less.

TABLE XXX

MEDIAN YEARS OF EXPERIENCE

	CLASS						
	A	B	C	D	E	F	G
Number.....	466	1,172	940	690	709	1,572	1,111
Median years. ..	3+	4+	4+	4+	5+	5+	8+

Another way of looking at this same problem is shown in Table XXX. This table should be read as follows: Of the 466 teachers in cities of 2,500 or under, one-half have had three years' or less experience; half in the cities of 2,501 to 5,000 have had four years' or less experience, etc. The median experience ranges from three to eight years, the more experienced teachers being in the larger cities.

In view of the greater salary opportunities in the larger cities it is what we should expect. The cities which offer the greatest opportunity for promotion from minimum to maximum salaries are able to secure a group of teachers with a median experience about twice as large as that found in the smaller cities. It should be borne in mind that the superintendents in the smaller cities spend considerable of their time in teaching; consequently they are even less able to give adequate supervision for their relatively inexperienced teachers than are superintendents in the larger cities. This lack of supervision is even more serious in consideration of the fact that the communities employing the less experienced teachers necessarily employ a much larger proportion of teachers who are not fully given over to teaching as a profession than do communities employing teachers of much experience.

TABLE XXXI

Total	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
0	248	474	436	237	329	614	439
1	49	139	108	80	91	202	117
2	45	102	71	81	60	132	87
3	29	82	60	42	49	75	58
4	22	52	42	31	32	54	49
5	18	44	51	33	28	56	52
6	9	28	28	24	18	40	40
7	9	27	16	8	18	28	37
8	11	14	16	14	10	27	21
9	3	7	15	15	14	19	19
10	2	11	16	11	5	27	30
11	2	15	5	3	11	19	18
12	5	6	4	8	5	14	15
13	2	7	7	4	9	20	15
14	1	3	2	7	7	5	15
15	2	8	2	8	6	6	9
16	1	4	6	5	7	8	10
17	.....	3	2	5	4	5	6
18	1	3	3	7	3	5	6
19	1	2	7	2	1	10	8
20	.....	3	2	3	3	5	8
21	.....	1	.....	5	1	7	6
22	.....	3	1	2	1	1	6
23	.....	.....	.....	1	2	4	4
24	.....	2	1	1	1	3	5
25	.....	.....	.....	2	.....	2	3
26	.....	.....	.....	.....	1	3	.....
27	.....	1	.....	1	1	2	2
28	.....	.....	2	1	1	3	.....
29	.....	2	.....	.....	1	1	1
30	.....	.....	.....	1	1	4	2
31	.....	1	.....	1	.....	1	.....
32	.....	.....	2	1	.....	.....	1
33	.....	.....	.....	.....	.....	.....	1
34	.....	.....	1	.....	.....	1	.....
35	.....	.....	.....	1	.....	.....	2
36	.....	.....	.....	.....	.....	.....	1
37	.....	.....	.....	.....	.....	.....	1
39	.....	.....	.....	.....	.....	2	1
40	.....	.....	.....	.....	.....	.....	1
41	.....	.....	.....	1	.....	.....	1
42	.....	.....	.....	.....	.....	.....	1
44	.....	.....	.....	1	.....	.....	.....
47	1	.....	.....	.....	.....	.....	.....
51	.....	.....	1	.....	.....	.....	.....
Median	461 0	1,044 1	907 1	647 1	719 1	1,405 1	1,098 1

The small community is constantly serving as a practice school for the large communities. After a little experience in the small community

the more ambitious are attracted to the larger places. A part of the remainder change occupation, and a small part of the group remain in the small cities.

Experience in high schools.—It is not infrequently said that one of the difficulties which high-school teachers have in dealing with the problems of the high school is that the teachers are not familiar with the work which is done in the elementary school. Table XXXI shows the exact amount of experience which the high-school teachers have had in non-secondary schools. This table should be read as follows: Of the 461 teachers working in cities of 2,500 or under, 248 had no experience in non-secondary schools; 49 had one year's experience in non-secondary schools; 45 had two years' experience, etc. There were 44 per cent of the teachers who had no experience in other than high-school work; 56 per cent had one year or less experience in other than secondary schools. The median teacher in cities of 2,500 or under had no experience in a non-secondary school. The median teacher in cities of larger size has had one year experience in a non-secondary school. Certainly the superintendent and high-school principal cannot rely upon this as a means of furnishing information to the teachers in the high school of the work that has been done in the grades. This table points to the necessity of the high-school principal or the superintendent giving specific instruction to the high-school teachers in regard to the work in the lower grades. On the other hand, this table indicates that a teacher who expects to teach in the high school need feel no fear of failure of getting a position without experience in non-secondary schools. There is no well-defined demand for this experience in high schools of any type.

TRAINING OF TEACHERS

Teachers who are not college graduates.—The North Central Association has for years had a requirement that the teachers in approved schools should be college graduates or the "equivalent." The points of equivalency have not been standardized to any considerable degree. Very striking differences exist, however, in different schools in the proportion of the teaching staff who are presumably "equivalent" to college graduates. Table XXXII shows the complete distribution for 592 schools reporting on this item. This table becomes clear when read as follows: Of the 70 schools in cities of a population of 2,500 or under, 33 employ no teachers who are not college graduates; 10 employ 1

teacher who is not a college graduate; 17 employ 2 teachers who are not college graduates; 5 employ 3 such teachers; 1 employs 4 such teachers; 3 employ 5 such teachers; 1 employs 6 such teachers, etc. From this table it is seen that about three schools out of four employ one or more teachers who are not college graduates. However, differences between the small city and large city are very marked in this particular, almost

TABLE XXXII

No Not Graduates	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	No of Teachers
0	33	42	22	13	7	10	6	. . . .
1	10	43	31	15	10	8	3	120
2	17	28	23	13	16	12	8	234
3	5	16	11	14	13	12	4	225
4	1	5	6	5	2	12	2	132
5	3	3	4	. . .	3	7	1	105
6	1	2	1	2	4	7	2	114
7	. .	. .	1	3	1	7	6	126
8	.	2	3	.	1	5	3	112
9	.	1	.	.	. .	4	3	72
10	.	.	1	.	1	3	5	100
11	. .	. .	. .	. . .	1	. . .	3	44
12	.	. .	. . .	1	. . .	.	3	48
13	. . .	. . .	. .	1	. . . .	. .	3	52
14	. . .	. . .	. . . .	. .	. . .	. . .	1	28
15	. . . .	.	. . . .	. .	. . . .	. . . .	1	30
16	. . . . .	. . .	. . . .	. . .	. . . . .	. . . . .	1	32
17	. .	. .	. .	. .	. . .	I	. . . . .	17
18	. . .	. . .	. .	. .	. . .	1	. . .	18
20	. . .	. .	. .	. .	. .	1	. . . . .	20
23	. . .	. . . . .	. . . . .	. .	. . . .	. . .	1	23
24	. . .	. .	. . .	. .	. . .	. . . .	1	24
27	. . .	. . . .	. . .	. .	. .	. . . .	1	27
31	. . .	. . .	. .	. . . .	. . .	. . . .	1	31
46	. . . .	. .	. . . .	. . .	. . .	. . . . .	1	46
50	. .	.	. . . .	. .	. . . . .	. . . . .	1	50
	70	142	103	67	59	90	61	1,776

half of the cities of 2,500 and under have no teachers who are not college graduates; while only one-tenth of the cities of 50,000 or over have no teachers who are not graduates of college. The fact that the large cities have teachers with much longer experience may mean that these teachers have been in the school system since the school was first placed on the list or it may mean that long experience in a good school system has come to stand for the "equivalent" of college graduation. It may be that the

small school feels a greater necessity for meeting the technical requirements of the Association in its every detail in an unquestioned manner than does the large school.

The 1,776 teachers who are reported as non-college graduates represent about one-fifth of the total number teaching in these schools. The great majority of these teachers are employed in the larger cities. Reference to the last column to the right indicates that some cities have as many as 50 teachers in their employ who are not graduates.

Teachers who are graduates of college.—Table XXXIII shows the distribution of the number of college graduates in the various high schools. The meaning of this table becomes clear when read as follows: Of the 72 cities with a population of 2,500 or under, one has 2 college graduates; 6 have 3 college graduates; 16 have 4 college graduates; 20 have 5 college graduates; 16 have 6 college graduates, etc. There are 6,491 college graduates reported as being employed in these schools.

The material found in this table in connection with that dealing with non-college graduates indicates the extent to which college graduation has become a standardized requirement for high-school teachers in the North Central territory. There seems to be only about one chance in five of a position being filled by a non-college graduate. For an inexperienced teacher the chance is probably very much less, so that it would seem safe to say that despite the fact that there are many non-graduates holding good positions the chance is very poor for a teacher who starts in today without being a college graduate.

Professional and academic schooling of the teacher.—The data showing the details of training for 7,045 teachers were distributed in order to find out the exact type and length of preparation made by the teachers. It was found that 1,040 of these teachers had received their education in normal school only; 5,109 in college and university only; and that 946 had taken a combined course in normal college or university.

Table XXXIV shows the number of years of training for the teachers who have done normal-school work only. This table should be read thus: In cities of 2,500 or under, 16 teachers were employed who had only one year of normal training; 29 with two years of normal training only; 7 with three years of normal training only; 26 with four years of normal training only; 4 with five years of normal training only. Reference to the right-hand column indicates that 187 of these teachers had

TABLE XXXIII

No.	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	No of Teachers
2	1	4	1					12
3	6	7	3	1	1		1	57
4	16	26	9	1			1	212
5	20	37	18	5	3	2	1	480
6	16	33	22	9	3	2	3	528
7	9	24	18	13	15	8	1	616
8	2	20	17	12	8	5	2	528
9	1	3	7	6	10	8	3	342
10	1	1	7	4	4	4	1	220
11		2	4	5	5	5	2	253
12			2	3	9	11		240
13		1	2	4	3	3	2	195
14				2	1	7	2	168
15				2	1	5		120
16				1		5		96
17					2	1		51
18						5	1	108
19		1			1	7		171
20				1		4	5	200
21						3		63
22						3	4	88
23						1		23
24							1	24
25						2	1	75
26						2	1	32
28						1	3	112
29							3	87
30				1	1		3	150
31						1	1	62
32								32
33							1	33
34						1	3	136
36						1	1	72
39						1	1	78
40							2	80
42							1	44
44							1	44
47						1	1	94
48							2	96
49							1	49
50							1	50
51							1	51
53							1	53
58							1	58
60							1	60
68							1	68
	72	159	110	70	67	98	62	6,491

TABLE XXXIV

NORMAL SCHOOL ONLY

Total Years in Normal	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total Number
1	16	18	22	25	35	32	39	187
2	29	61	51	31	65	75	34	386
3	7	32	35	20	26	39	27	256
4	26	51	28	6	27	32	14	184
5	4	7	3	2	1	2	2	21
6					1			1
7							5	5
	82	171	140	85	155	182	121	1,040

one year of normal training only; 386, two years only, etc. One striking fact that comes out clearly is that four-fifths of these people have studied less than four years in normal school.

Table XXXV shows the range of distribution for teachers who have received their training in college and university. Of the 382 teachers at work in cities of 2,500 or under, 17 had one year of college or university work alone; 36 had two years; 32, three years; 259, four years, etc. Reference to the right-hand column reveals the fact that 193 had one year only of college or university training; 985, or less than one-fifth, of these people have had less than a four-year course. On the other hand,

TABLE XXXV

COLLEGE OR UNIVERSITY ONLY

Total Years in University	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total Number
1	17	31	28	19	23	32	43	193
2	26	47	64	39	53	88	61	379
3	32	64	54	40	54	91	78	413
4	259	667	426	362	428	690	489	3,321
5	35	99	64	77	75	158	115	433
6	7	26	26	18	22	49	50	268
7	2	10	7	5	3	17	23	67
8	2	3	1		2	1	11	20
9	2	2	1		2	2	1	10
10							3	3
12		1				1		2
	382	950	671	560	662	1,129	874	5,109

790, or almost one-sixth, of these people have had more than four years' training. The latter figure is an indication of the extent of advanced preparation.

Table XXXVI shows the distribution of the teachers who have had training both in normal and college or university courses. Of the 46 cities of 2,500 and under having teachers who have had a combined normal

TABLE XXXVI

COMBINED NORMAL AND COLLEGE OR UNIVERSITY COURSE

TOTAL YEARS		UNDER 2,500	2,501 TO 5,000	5,001 TO 7,500	7,501 TO 10,000	10,001 TO 15,000	15,001 TO 50,000	50,001 AND OVER	TOTAL
Normal	College								
2	1	. . . .	8	7	4	5	5	5	34
3	1	1	7	10	4	4	14	11	52
	2	1	2	14	7	7	8	15	9	62
4	1	3	1	7	5	4	5	9	6	37
	2	2	9	24	14	13	12	27	5	104
	3	1	1	10	5	7	10	12	4	49
5	1	4	4	11	8	9	14	18	9	73
	2	3	4	9	6	5	9	10	10	53
	3	1	4	13	10	5	5	12	13	62
	4	1	5	12	11	7	4	7	8	54
6	1	5	3	4	. . . . .	3	3	7	5	25
	2	4	7	15	8	4	8	9	2	53
	3	3	1	11	2	4	6	11	6	51
	4	2	. . . .	6	8	5	11	16	9	55
	5	1	1	1	5	1	1	1	2	12
7	1	6	. . . . .	2	1	. . . . .	2	. . . . .	1	6
	2	5	1	1	2	. . . . .	1	3	3	11
	3	4	. . . . .	4	. . .	6	3	6	2	22
	4	3	. . . . .	9	5	2	7	12	10	45
	6	1	. . . .	. . . . .	1	. . .	. .	1	. . .	2
8	5	2	. . . . .	1	. . . . .	1	. . . .	1	1	4
	1	7	. . . .	2	. .	. . . .	. . . . .	1	1	4
	6	2	. .	. . . . .	. . . . .	1	1	. . .	2	4
	2	6	. . . .	. . . . .	1	. . . .	1	. . . . .	1	3
	4	4	1	7	6	3	3	5	6	31
	3	5	. . . .	2	. . .	. . . .	1	. . .	2	5
	5	3	1	1	1	. . . .	1	1	1	6
9	3	6	. . . . .	1	. . . .	. . . .	. . .	. . .	. . . . .	1
	2	7	. . . .	. . . .	. . . .	. . . . .	. .	. .	. . . . .	. . . .	. . . . .	. . .
	5	4	. . . . .	. . . . .	. . .	1	. . . .	. .	. . . . .	1	2
	4	5	. . . . .	3	2	. . . . .	. . . . .	2	. . . .	7
10	6	4	. . . . .	1	. . . .	. . . . .	. . . . .	. . . .	. . . . .	1
	2	8	. . . .	1	. . . . .	. . . .	1	. . . .	. . . . .	2
12	7	5	. . . . .	. . . . .	. . . . .	. . . . .	. . . .	. . .	1	1
13	4	9	. . . . .	. . . . .	. . . . .	. . . .	. .	. . .	1	1
14	2	12	. . . . .	1	. . . .	. . . . .	. . . . .	. . . .	. . . . .	. . . .	. . . .
		46	188	125	94	127	195	137	936

and university course, 1 has gone to normal school only one year and to college two years; 2 to normal school two years and one year to college; 1 to normal school one year and three years to college; 9 to normal two years and to college two years; 1 went three years to normal and one year to college; 4 went one year to normal and four to college; 4 had two years in normal and three years in college; 4 had three years in normal and one year in college, etc.

Reference to the right-hand column indicates that almost 150, or about one-sixth, of these teachers have had less than four years of combined work in the normal and college or university course. On the other hand, 500, or over half, have had more than four years' combined preparation.

Table XXXVII shows the total distribution of the training of teachers in the different-sized cities. This table should be read as

TABLE XXXVII

	Class of Town							
	A	B	C	D	E	F	G	Total
Normal only.....	82	171	140	85	155	182	121	1,040
College or university....	382	950	671	560	662	1,129	874	5,059
Combined..	46	188	125	94	127	195	137	936

follows: In cities of 2,500 or less, 82 of the teachers have had normal training only; 382, college or university training only; and 46 had a combined type of training. Reference to the right-hand column indicates that 1,041 were trained in the normal school; 5,059, in college or university, and 936, in normal and college or university.

In order to find out whether or not any striking differences are to be noted in regard to the selection of the different type of teachers in the different classes of cities, the percentages shown in Table XXXVIII have been calculated. This table should be read as follows: In towns of 2,500, 16 per cent of the teachers with any training at all have been trained in normal school only; 74 per cent in college or university only; and 10 per cent were trained in the two combined. It is to be noted that the range of difference is very slight in different-sized cities, for each type of training, which indicates that no particular type of city is given to the selection of a certain type of preparation. The college or univer-

sity is overwhelmingly predominant in the matter of the training of the teachers for high-school positions: 74 per cent of these teachers have had college or university training only; 13 per cent have had normal training only; and 13 per cent have had college and normal training combined, making a total of 87 per cent of these teachers who have come into contact with the college influence, and a total of 26 per cent of the teachers who have come into contact with the normal influence. These figures indicate that the college or university is chiefly responsible for the preparation of teachers for the high school. This certainly suggests that the college and university should take specific recognition of the fact that they are training the large majority of the teachers for the North Central high schools. School men should insist upon it that a part of this preparation should be along the lines calculated to be of specific value to the teacher in the high school.

TABLE XXXVIII

PERCENTAGE TABLE OF ABOVE

	CLASS OF TOWN							
	A	B	C	D	E	F	G	Total
Normal only...	16	14	16	12	16	12	10	13
College or university	74	72	71	75	70	74	76	74
Combined.....	10	14	13	13	14	14	14	13

The fact that the large majority of these teachers are trained in college is of importance in connection with the criticisms which are not infrequently made by college men. The teachers are largely what the colleges have made them. At least a part of the burden of responsibility for inefficiency on the part of the high-school teachers is chargeable to the college. One way of getting better results in high school will be to give more serious attention to the training of these teachers in college or university. The growing independence of the high school as an institution is surely safeguarded from the point of view of the university from the fact that the people in charge of the high schools are for the most part products of university training.

Degrees of teachers.—The North Central Association requires that all teachers be college graduates or the equivalent. Each teacher is required to furnish information as to the exact degree held and the name of the

institution from which the degree was received. Table XXXIX shows the different degrees reported and the total number of degrees held by the teachers in the schools. The variation in the degrees earned by these teachers is interesting. Of the twenty-six different degrees reported, over half of the Bachelor's degrees are in the department of arts. About one-eighth of the teachers hold Bachelor's degrees from the department

TABLE XXXIX

Degrees of Teachers	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total
A B	158	370	364	258	297	433	370	2,450
B S	37	102	85	56	67	164	101	612
Ph.B	34	76	75	45	51	106	82	469
M.A	14	20	23	12	15	55	77	218
M.S		13	8	3	3	11	6	54
LL.B		1	2		3	1	6	12
B.A	44	48	55	31	31	45	106	360
B.L	5	8	7	3	2	20	23	68
Ph.D		9	4	2	2	5	17	39
Ph.M		2	2	2	1	1	1	9
B.D	2	10	5	3	23	6	7	55
A.M	7	28	30	30	40	52	66	323
Ph.C	1							1
LL.D							2	2
D S		2			1			3
S.B	3	7	1	6	3	2	1	23
D D		1						1
M.D		2	2		5	5	3	17
B.Ph	1	2		1	3	2	4	13
M.L		2			1		3	6
B.M		1	1	1		1	1	5
B P.L			1		1			2
Ag.B	2		2					4
B.C		1			1		3	5
C.E							1	1
M.E		1						1
	308	706	667	453	550	909	879	4,856

of Science; one-ninth hold degrees in law or philosophy; one-eighth of the teachers hold Master's degrees, the large majority of which are in arts. Less than 1 per cent hold the degree of Doctor of Philosophy. The scattering degrees represent different amounts of work; e.g., B.D. represents quite generally only two years of collegiate work.

Tenure.—The length of time a teacher serves in a single position is an important item of administration. Table XL shows the distribution

of terms for 6,617 teachers. This table should be read thus: In cities of 2,500 or under, 230 teachers were serving their first year; 117, their

TABLE XL

Total No Years	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1	238	472	337	236	260	509	297
2	117	239	208	154	138	246	135
3	42	147	117	98	92	183	120
4	27	73	76	47	64	132	76
5	21	58	38	33	44	62	49
6	12	37	29	26	22	60	59
7	7	40	29	21	16	46	50
8	5	26	15	13	22	38	32
9	3	17	18	9	10	19	40
10	4	8	7	14	11	29	57
11	4	7	4	7	8	9	25
12	1	4	7	6	7	21	24
13	1	4	6	4	6	21	22
14	1	6	7	3	5	9	18
15		9	8	4	4	13	20
16	1	1	3	3	4	9	13
17			5	3	6	7	8
18	2	2	2	5	3	8	9
19		3	1	1	2	3	8
20	1	1	2	3	4	3	11
21		4	1	3	2	2	6
22		1	1	2	1	5	5
23				1	3	5	5
24				3		4	2
25		2	2	1	3	7	9
26	1		2		1	4	6
27			1				3
28	1			1		1	1
29		4			1	2	8
30			1		2	4	4
31		2		1		1	3
32							3
33			1		1	1	
34			1				
35						3	2
36			1			1	
38							1
40							1
41			1				
	489	1,167	929	702	742	1,456	1,132

second year, etc. The range of service varied from less than 1 year to 41 years. However, the tenure of a majority of teachers was relatively short. Over one-third of all the teachers were serving their first year.

Certain differences were found in cities of different size. About one-half of the teachers in cities of 2,500 or less were serving in their first year; two-fifths in towns of 2,500 to 5,000; one-third in cities of 5,000 to 7,500; one-fourth in cities of 50,000 or over. The median tenure for cities below 50,000 was one to two years and in cities above 50,000, four years. In consideration of the facts brought out earlier in the study that the large cities pay larger salaries and have more experienced teachers, we should have no reason to be surprised at the longer tenure. The various forces combine in making greater stability of the teaching population. We know little of the real significance of the rapid shift in the teaching population; but surely the cities with an inexperienced, poorly paid, and rapidly shifting teaching population are contending with a serious problem.

SUMMARY

One value of such a presentation of facts concerning the administration of high schools is that it affords a simple means of comparison whereby any school may be ranked in reference to the administrative features considered. The numerous distribution tables and medians furnish a basis for ready reference which should enable school authorities to make an intelligent survey of conditions in high schools as to size, organization, and instructional staff. The following tabulated summary of medians should be helpful in this connection.

Table XLI should be read thus: In the 74 cities of class A (in terms of medians) the high-school enrolment is 109, there are 20 students per teacher, there are 23 recitations per day, two of which are taught by the superintendent, whose salary is from $1,401 to $1,500. The principal receives from $801 to $850. The maximum salary is from $701 to $750; the minimum salary is from $551 to $600. The teacher in this school has had three years' experience.

Generalizations.—There is wide variation from state to state in the number of schools conforming to the standards of the North Central Association; in the size of cities maintaining such schools, in the enrolment of the high schools and in the number of teachers teaching in these schools.

There is wide variation from small to large cities in the number of recitations offered in the school; in the number of recitations taught by

the superintendent; in the number of recitations taught by the teacher; in the length of the recitation period; in the length of the school year; in the size of classes; in the salaries; in the experience; in the tenure; in the sex of teachers and principals; and in the proportion of non-graduates.

TABLE XLI

TABULATED SUMMARY OF MEDIANS

	Class of Towns						
	A	B	C	D	E	F	G
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1. No. towns	74	162	111	69	67	101	73
2. Median enrolment	109	162	175	243	250	450	841
3. Median number students per teacher	20	20	20	20	20	20	25
4. Median number recitations	23	29	34	47	49	70	107
5. No. classes taught by superintendent	2	2	1	0	0	0	0
6. Salary of superintendent	$1,500*	$1,600	$1,800	$2,000	$2,000	$2,500	$5,000
7. Salary of principal	$ 850*	$1,000	$1,100	$1,300	$1,400	$1,800	$3,000
8. Maximum salary of teachers	$ 750*	$ 750	$ 850	$ 950	$1,100	$1,150	$1,600
9. Minimum salary of teachers	$ 600*	$ 600	$ 650	$ 700	$ 700	$ 500	$ 800
10. Years' experience teaching	3	4	4	4	5	5	8
11. Median tenure	1	2	2	2	2	2	4

*In the $1,500 group, etc.

Although the median high-school enrolment increases as population increases, it does not increase in the same ratio. Small high schools are found in cities of every class. In the same way it can be said that the number of teachers increases with the enrolment, yet the correlation is not perfect. Eleven- or twelve-teacher schools vary in enrolment from less than 100 to more than 450. The median ratio of 20 students per teacher seems to have become a standard in cities with a population of less than 50,000. The same overlapping is to be noted in the number of recitations taught in each school. Schools offering 21 to 25 recitations per day are found in cities of every class, despite the fact that there is a median increase in the number of recitations as the population increases. The percentage of superintendents who teach decreases from 91 per cent

in the small cities to 13 per cent in the cities with a population of 50,000 or over. The recitation period tends to be longer in the larger cities although the overlapping is such that small cities have long recitations and vice versa. The large cities show a larger proportion of classes with more than 30 pupils. Practically all of the superintendencies are filled by men, although women are represented in cities of almost every class. Women are filling almost one-fifth of the principalships, but the percentage decreases from 43 per cent in the small cities to 3 per cent in the cities of 50,000 or over. Women are filling 69 per cent of the teaching positions, but the percentage decreases from 80 per cent in the small cities to 63 per cent in the cities of 50,000 or over. The salaries for each class of worker increase from small to large cities, the increase being least for minimum salaries and greatest for superintendents. The median experience of teachers increases from 3 years in the small city to 8 years in the city of 50,000 or over. There seems to be no difference in the amount of experience these teachers have had in the elementary schools. About one-fifth of the teachers are not college graduates. The small cities, however, employ relatively few of them. About one-eighth of the teachers receive their training in the normal school alone, and about one-eighth receive their training in normal and college combined. The rest receive such training as they have in college or university. No difference in this particular is noticeable in the towns of different size. One-half of the holders of Bachelor degrees have the degrees in arts. One-eighth of the teachers holding degrees hold the Master's degree. One-third of all of the teachers were serving their first year. The median tenure for cities below 50,000 was one to two years—for cities above 50,000, four years.

The small high schools vary less from the standards of the Association than do the large high schools.

Suggested conclusions—The obvious conclusion from this array of facts is that the standards set up by definition are not carried out in practice. No group of men, no matter how intelligent they may be, can by the pooling of opinions agree upon a list of standards that will serve equally well all high schools. All high schools cannot be made to conform to a list of a priori standards for the reason that there are other determining forces, both within and without the given school. As a rule, conditions found in a given school are a rough portrayal of the educational sentiment of the community. Generally speaking, good schools

are found in good communities. On the other hand, the condition of a given school is not necessarily an index of what the community can do for the school. Because this is true the inspectors in this Association are doing missionary work of a high order when they stimulate lethargic or backward cities to higher standards.

Because of the insistence of the democratic demand that there must be equal educational opportunities for all, small communities are taxing themselves heavily to provide as good schools as are supported by larger communities. These more or less theoretical considerations may account for the fact that small schools are meeting the North Central standards in large numbers.

One of the least valuable and yet most interesting parts of this investigation deals with the distribution of teachers as to sex on three teaching levels, viz., superintendencies, principalships, and teaching positions. The proportionate number of women engaged in education decreases in the direction of the more purely executive positions. The fact that we now find them in large numbers in the high-school principalships and fairly represented in the superintendencies may be prophetic of the future.

From the foregoing data a high-school teacher, principal, or superintendent may easily determine his expectancy as expressed in salary. He can tell whether he receives more or less than the median salary. Of course, there is a fallacy in all such expectancy tables. A particular teacher or principal may be receiving all or more than he is worth and still be in the poorest paid one-third of his class. An insurance actuary, if asked by someone, "What is my expectancy in life?" should reply, "I don't know what *your* expectancy is. It may be two months or forty years. But the expectancy of men of your age is so much." Similarly no individual teacher can determine with any certainty what *his* expectancy is. He can only determine with a fair degree of accuracy what the expectancy is for teachers of his training, experience, habits, and the like. In spite of these limitations, salary tables in cities of a given size do furnish a better basis than none for determining the actual and probable incomes of superintendents or teachers.

The salary tables show that there is a direct correlation between the salary paid and the size of the place, and that the variability and range is greater in large places than in small places. This condition is responsible for much of the shifting of the teaching population from position

to position. The greater money rewards are found in the larger places. Frequently the only way for a teacher to be rewarded, i.e., to get an increase in salary, is to move. It is a misfortune that many communities let the competent go with the incompetent. Communities need to be stimulated to pay good teachers higher salaries so as to insure greater stability of location among teachers. A campaign should be inaugurated for this purpose.

There are no tables in this report of more significance than those showing the experience of teachers. They show that there is little permanency in the teaching corps. With enough vacancies occurring in three or four years to equal the total number of high-school teachers, the school superintendent confronts a constantly recurring problem, that of training the recruits in the methods of schoolroom procedure. This problem is accentuated by the fact that one-half of the high-school recruits are inexperienced, for these data show that the inexperienced teacher stands an even chance of getting his initial experience in a high school. Moreover, there is no good reason to believe that the successful elementary experience of the others is a sure indication of success in the high school. A closer articulation of the two divisions of the schools is not being secured by advancing grade teachers to high-school positions. The task of providing adequately trained people for high-school teaching positions plainly rests with higher educational institutions. Colleges and university schools of education and departments of education are an expression of the desire of the public in regard to this matter. But until the rewards are greater and aroused public consciousness insists upon the employment of only those who are adequately trained, results will be far from satisfactory. One high-school teacher out of every five is not a college graduate. Three high schools out of every four employ one or more undergraduates, in spite of the standards set up by the North Central Association.

This discussion of the results of this investigation may be summarized as follows:

1. Standards determined by definition are not uniformly applied in practice.

2. The problem of administering a system of schools varies in complexity according to the size of the community, the enrolment of the school, the size of the classes, the number of classes, and the character of the teacher.

3. The number of recitations and the potential flexibility of the curriculum and variety of appeals afforded in a given type of schools increases in direct ratio to the size of the community represented.

4. Feminization increases as the amount of executive work decreases.

5. Expectancy as expressed in salaries and tenure increases with the size of the place.

6. Professionalization in teaching rests at present with the more experienced teachers in the larger places.

CONSTITUTION OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Revision Adopted in Chicago, February, 1909)

ARTICLE I

Name.—The name of this Society shall be "National Society for the Study of Education."

ARTICLE II

Object.—Its purposes are to carry on the investigation and to promote the discussion of educational problems.

ARTICLE III

Membership.—SECTION 1. There shall be three classes of members—active, associate, and honorary.

SEC. 2. Any person who is desirous of promoting the purposes of this Society is eligible to active membership and shall become a member on approval of the Executive Committee.

SEC. 3. Active members shall be entitled to hold office, to vote, and to participate in discussion.

SEC. 4. Associate members shall receive the publications of the Society, and may attend its meetings, but shall not be entitled to hold office, or to vote, or to take part in discussion.

SEC. 5. Honorary members shall be entitled to all the privileges of active members, with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be elected to honorary membership by vote of the Society on nomination by the Executive Committee.

SEC. 6. The names of the active and honorary members shall be printed in the *Yearbook*.

SEC. 7. The annual dues for active members shall be $2.00 and for associate members $1.00.

ARTICLE IV

Officers and Committees.—SECTION 1. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an Executive Committee, and a Board of Trustees.

SEC. 2. The Executive Committee shall consist of the president and four other members of the Society.

SEC. 3. The president, vice-president, and secretary-treasurer shall serve for a term of one year. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A Board of Trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.

The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

SEC. 6. The method of electing officers shall be determined by the Society.

ARTICLE V

Publications.—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

ARTICLE VI

Meetings.—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

ARTICLE VII

Amendments.—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

MINUTES OF THE PHILADELPHIA MEETING OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION, FEBRUARY, 1913

The meeting which had been scheduled to take place on Monday evening, February 24, conflicted seriously with the meeting arranged by the National Council of the National Education Association. Consequently, upon the suggestion of many members, the President and Secretary announced the postponement of the meeting to Wednesday, February 26, at 3:15 P.M.

At the postponed meeting on Wednesday, held in the Bellevue-Stratford Hotel, there was a full attendance. President Van Sickle opened the meeting with a brief presentation of the problems discussed in the *Yearbooks*. He was followed by Dr. J. F. Bobbitt, of the University of Chicago, principal author of the *Yearbook* on the "Supervision of City Schools." Dr. Bobbitt outlined the main theses contained in his article. His discussion was supplemented by the following members: Professor W. A. Jessup, of the State University of Iowa; Professor L. D. Coffman, of the University of Illinois; and Professor E. F. Buchner, of Johns Hopkins University.

Before beginning the discussion of the *Yearbook* on the "Supervision of Rural Schools" a motion was made to postpone until the next day, but it was not carried. The discussion was then taken up by Professor W. S. Sutton, of the University of Texas, and continued by Miss I. Davidson and Miss L. L. Fall, of Baltimore County, Maryland, and Professor Graham, of Ohio State University.

The report of the Nominating Committee was then presented and the following officers elected: President, Superintendent M. G. Brumbaugh, of Philadelphia; Vice-President, Superintendent J. M. Gwinn, of New Orleans; Member of the Executive Committee, Professor G. D. Strayer of Columbia University; Member of the Board of Trustees, Professor Charles McMurry, De Kalb, Ill.

The following motions were carried: First, that in the future the meetings be held as announced in the printed program. Second, in case the National Council of the National Education Association continues to have a meeting on Monday that promises to conflict seriously with the meeting of the National Society, that the latter be arranged for Monday afternoon.

JAMES H. VAN SICKLE, *President*
S. CHESTER PARKER, *Secretary*

FINANCIAL REPORT OF THE SECRETARY-TREASURER OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

JANUARY 1, 1913, TO DECEMBER 31, 1913

RECEIPTS FOR 1913

Balance on hand December 31, 1912			$812 29
From sale of *Yearbooks* by University of Chicago Press:			
June to December, 1912	$338 22		
January to June, 1913	457.82		
		$796 04	
Interest on savings' bank account:			
To January 1, 1913	6 77		
To July 1, 1913	7.13		
		$ 13.90	
Dues from members (current and delinquent):			
Active	279 20		
Associate	79.20		
		$358.40	
Total income for the year			$1,168.34
Total receipts including initial balance			$1,980.63

EXPENDITURES FOR 1913

Publishing and distributing two "Yearbooks":		
Printing *Twelfth Yearbook*, Part I ("Supervision of City Schools")	$338.38	
Printing *Twelfth Yearbook*, Part II ("Supervision of Rural Schools")	351.20	
Distributing *Yearbook*	2 28	
Inserts and Circulars about Membership and *Yearbooks*	12.25	
Stenographic work on Part I of *Yearbook*	25.00	
Copyright fee	2 27	
Total cost of *Yearbooks*		$731 38

Brought forward		$731.38
Secretary's office:		
Secretary's salary from end of St. Louis meeting, February, 1912, to end of Philadelphia meeting, February, 1913	$100 00	
Secretary's traveling and hotel expenses for Philadelphia meeting	87.20	
Typewriting	21.35	
Stationery	10 45	
Stamps	17.47	
Expressage	.60	
Exchange	4 70	
Total for Secretary's office		$241.77
Total expenses		$973 15

SUMMARY

Total expenditures for 1913	$ 973 15
Balance on hand December 23, 1913	1,007.48
Total	$1,980.63

MEMBERSHIP

Number of active members (including one honorary) December 23, 1913	149
Number of associate members December 23, 1913	83
Total membership	232

S. CHESTER PARKER, *Secretary-Treasurer*

The accounts of the Society were audited for the year 1912 by Messrs. Holmes and Felmley of the Board of Trustees and found to be correct.

LIST OF HONORARY AND ACTIVE MEMBERS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

HONORARY MEMBER

Dewey, John, Columbia University, New York, N.Y.

ACTIVE MEMBERS

Allen, Fiske, State Normal School, Charleston, Ill.
Axline, Howard E., West Technical High School, Cleveland, Ohio.
Bagley, William C., University of Illinois, Urbana, Ill.
Baldwin, Bird T., Swarthmore College, Swarthmore, Pa.
Becker, Ernest J., Eastern High School, Baltimore, Md.
Benedict, Ezra W., Walden, Orange Co., N.Y.
Blaine, Mrs. Anita McCormick, 101 East Erie St., Chicago, Ill.
Bolton, Frederick E., State University, Seattle, Wash.
Boyer, Charles, Superintendent of Schools, Atlantic City, N.J.
Bradford, Mrs. Mary D., Superintendent of Schools, Kenosha, Wis.
Bricker, Garland A., Ohio State University, Columbus, Ohio.
Brooks, E. C., Trinity College, Durham, N.C.
Brooks, Sarah C., 9 Crescent Ave., Newton Center, Mass.
Brooks, Stratton D., State University, Norman, Okla.
Brown, John F., 559 West 156th St., New York, N.Y.
Brown, J. Stanley, Superintendent Township High School, Joliet, Ill.
Brumbaugh, Martin G., Superintendent of Schools, Philadelphia, Pa.
Bryan, W. J. S., 6102 Waterman Ave., St. Louis, Mo.
Buchner, Edward F., Johns Hopkins University, Baltimore, Md.
Burnham, Ernest, State Normal School, Kalamazoo, Mich.
Burruss, Julian A., State Normal and Industrial School for Women, Harrisonburg, Va.
Call, Arthur Deerin, 612 Colorado Bldg., Washington, D.C.
Cammack, I. I., Principal Kansas City High School, Kansas City, Mo.
Chadsey, Charles E., 1767 Humboldt St., Denver, Colo.
Chandler, J. A. C., Superintendent of Schools, Richmond, Va.
Charters, W. W., State University, Columbia, Mo.
Claxton, P. P., Bureau of Education, Washington, D.C.
Coffman, Lotus D., University of Illinois, Urbana, Ill.
Condon, Randall J., Superintendent of Schools, Cincinnati, Ohio.

Conradi, Edward, Florida State College for Women, Tallahassee, Fla.
Cook, Albert S., County Superintendent of Schools, Towson, Md., Sta. A.
Cook, John W., President, Northern Illinois State Normal School, De Kalb, Ill.
Cooke, Flora J., F. W. Parker School, 330 Webster Ave., Chicago, Ill.
Cubberley, Ellwood P., Leland Stanford Junior University, Stanford University, Cal.
Davis, B. M., Miami University, Oxford, Ohio.
Davis, Emma C., 2024 East 46th St., Cleveland, Ohio.
Deahl, Jasper N., University of West Virginia, Morgantown, W.Va.
Dearmont, Washington S., President, State Normal School, Cape Girardeau, Mo.
De Garmo, Charles, Cornell University, Ithaca, N.Y.
Doelle, John A., Superintendent of Schools, Houghton, Mich.
Doyle, Mary E., Holy Names Normal School, Capitol Hill, Seattle, Wash.
Dyke, Charles B., Superintendent of Schools, Youngstown, Ohio.
Earhart, Lida B., 430 West 118th St., New York, N.Y.
Eby, Frederick, State University, Austin, Tex.
Edmund, Gertrude, Cohocton, N.Y.
Elliott, C. H., State Normal University, Carbondale, Ill.
Elliott, Edward C., University of Wisconsin, Madison, Wis.
Ellis, A. Caswell, University of Texas, Austin, Tex.
Elson, William H., 1768 East 89th St., Cleveland, Ohio.
Farrington, Frederick E., Teachers College, Columbia University, New York, N.Y.
Felmley, David, President, Illinois State Normal University, Normal, Ill.
Fleshman, A. C., State Normal School, Kearney, Neb.
Forbes, George M., 235 Dartmouth St., Rochester, N.Y.
Foster, H. H., Ottawa University, Ottawa, Kan.
Frederick, J. M. H., Superintendent of Schools, Lakewood, Ohio.
Frost, J. M., Superintendent of Schools, Muskegon, Mich.
Gosling, T. W., Hughes High School, Cincinnati, Ohio.
Greeson, William A., Superintendent of Schools, Grand Rapids, Mich.
Gwinn, J. M., Superintendent of Schools, New Orleans, La.
Hall, John W., University of Cincinnati, Cincinnati, Ohio.
Halleck, Reuben Post, Principal Boys' High School, Louisville, Ky.
Hamilton, Cora M., State Normal School, Macomb, Ill.
Hanifan, L. J., State Supervisor of Rural Schools, Charleston, W.Va.
Hanus, Paul H., Harvard University, Cambridge, Mass.
Harris, Ada Van Stone, 6216 Howe St., E.E., Pittsburgh, Pa.
Harwood, Samuel E., State Normal School, Carbondale, Ill.
Hatch, W. H., Superintendent of Schools, Oak Park, Ill.
Heckert, J. W., Miami University, Oxford, Ohio.

enderson, Harmon C., State Normal School, Milwaukee, Wis.
ill, Patty Smith, Teachers College, Columbia University, New York, N.Y.
itchcock, Clara M., Lake Erie College, Painesville, Ohio.
orn, Paul Whitfield, Superintendent of Schools, Houston, Tex.
effers, Fred A., Superintendent of Schools, Painesdale, Mich.
Jenks, Jeremiah W., New York University, Washington Square, New York, N.Y.
Johnson, Pliny, Woodward High School, Cincinnati, Ohio.
Jones, Arthur J., State University, Orono, Me.
Jones, Lewis H., State Normal College, Ypsilanti, Mich.
Judd, Charles H., University of Chicago, Chicago, Ill.
Kay, James H., President, State Normal School, Marquette, Mich.
Keating, J. F., Superintendent of Schools, Pueblo, Colo.
Kimball, J. F., Superintendent of Schools, Temple, Tex.
Kirk, John R., President, State Normal School, Kirksville, Mo.
Kirk, W. H., Superintendent of Schools, E. Cleveland, Ohio.
Kraus-Boelté, Mrs. Maria, Hotel San Remo, New York, N.Y.
Lattimore, J. C., Superintendent of Schools, Waco, Tex.
Lawrence, Isabel, State Normal School, St. Cloud, Minn.
Lawson, W. C., Superintendent of Schools, Bryan, Tex.
Lewis, Homer P., Superintendent of Schools, Worcester, Mass.
Logan, Anna E., Miami University, Oxford, Ohio.
Lord, L. C., State Normal School, Charleston, Ill.
Lowry, Charles D., 1643 Kenilworth Ave., Chicago, Ill.
Lucas, Hardin, State Normal School, Valley City, N.D.
Luckens, Herman T., F. W. Parker School, 330 Webster Ave., Chicago, Ill.
Luckey, G. W. A., 1439 "R" St., Lincoln, Neb.
Mackey, E., Superintendent of Schools, Trenton, N.J.
Manny, Frank A., Teachers' Training School, Baltimore, Md.
Marrs, S. M. N., Superintendent of Schools, Terrell, Tex.
Marsh, J. F., Assistant State Superintendent of Schools, Charleston, W.Va.
Marsh, M. E., Berea College, Berea, Ky.
Maxwell, William H., Superintendent of Schools, New York, N.Y.
McDaniel, C. M., Superintendent of Schools, Hammond, Ind.
McKenny, Charles, President, State Normal School, Ypsilanti, Mich.
McMurry, Charles A., State Normal School, De Kalb, Ill.
McMurry, Frank M., Teachers College, Columbia University, New York, N.Y.
Miller, Irving E., Teachers College, Greeley, Colo.
Mills, Harriette M., New York University, Washington Square, New York, N.Y.
Minnich, H. C., State Normal College, Oxford, Ohio.
Morgan, O. S., Alfred University, Alfred, N.Y.

Morrison, H. C., State Superintendent of Schools, Concord, N.H.
Newton, George A., Trinity University, Waxahachie, Tex.
Nichols, C. A., Southwestern University, Georgetown, Tex.
Olin, A. S., State University, Lawrence, Kan.
O'Shea, M. V., University of Wisconsin, Madison, Wis.
Parker, S. C., University of Chicago, Chicago, Ill.
Pollock, Rosalie, Supervisor, Primary Schools, Oklahoma City, Okla.
Pusey, E. D., Superintendent of Schools, Goldsboro, N.C.
Putnam, Helen, Providence, R.I.
Rall, E. E., State University, Knoxville, Tenn.
Reigart, J. F., 31 Euclid Ave., Yonkers, N.Y.
Rosier, Joseph, Superintendent of Schools, Fairmont, W.Va.
Ruediger, W. C., George Washington University, Washington, D.C.
Russell, James E., Teachers College, Columbia University, New York, N.Y.
Rynearson, Edward, Principal, 5th Avenue High School, Pittsburgh, Pa.
Sachs, Julius, Columbia University, New York, N.Y.
Scudder, Myron T., 59 West 96th St., New York, N.Y.
Shank, Burgess, 526 Linden St., Ann Arbor, Mich.
Sheppard, James J., High School of Commerce, New York, N.Y.
Smiley, W. G., Principal of High School, Houston, Tex.
Slauson, Herbert M., Superintendent of Schools, Ann Arbor, Mich.
Snedden, David S., 302 Ford Building, Boston, Mass.
Snyder, Z. X., President, State Normal School, Greeley, Colo.
Stark, W. E., Supervising Principal of Schools, Hackensack, N.J.
Stone, Cliff W., State Normal School, Farmville, Va.
Strayer, George D., Teachers College, Columbia University, New York, N.Y.
Sutton, W. S., 112 West 18th St., University of Texas, Austin, Tex.
Suzzallo, Henry, Teachers College, Columbia University, New York, N.Y.
Taylor, Joseph S., 2275 Loring Place, The Bronx, New York, N.Y.
Thompson, Frank E., University of Colorado, Boulder, Colo.
Thorndike, Edward L., Teachers College, Columbia University, New York, N.Y.
Thurber, Charles H., Editor, Ginn & Co., 29 Beacon St., Boston, Mass.
Updegraff, Harlan, University of Pennsylvania, Philadelphia, Pa.
Vandewalker, Nina C., State Normal School, Milwaukee, Wis.
Van Sickle, James H., Superintendent of Schools, Springfield, Mass.
Waldo, Dwight B., Western State Normal School, Kalamazoo, Mich.
Walker, Elmer W., Superintendent of State School for the Deaf, Delavan, Wis.
Willison, Archibald C., Superintendent of Schools, Allegany County, Cumberland, Md.
Wilson, G. M., Iowa State College, Ames, Ia.
Wright, Robert H., Teachers Training School, Greenville, N.C.

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THE THIRTEENTH YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

PART II

PLANS FOR ORGANIZING SCHOOL SURVEYS

WITH A SUMMARY OF TYPICAL SCHOOL SURVEYS

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BY

H. L. SMITH
Superintendent of Schools, Bloomington, Indiana

AND

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Director of the School of Education, the University of Chicago

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Edited by S. CHESTER PARKER, *Secretary*

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PLANS FOR ORGANIZING SCHOOL SURVEYS

H. L. SMITH
Superintendent of Schools, Bloomington, Indiana

INTRODUCTION

In preparing the following paper, I have secured many suggestions from the publications of the National Bureau of Education, from the many excellent annual school reports and school surveys that have been published during the past three or four years, and from several individuals who were kind enough to share a part of their time with me in personal interviews on the subject under discussion. Of the school reports, I wish to mention especially the recent ones from the following cities: Cleveland, Ohio; Elmira, New York; Louisville, Kentucky; Newton, Massachusetts; New York, New York.

The following recently published school surveys are typical of those that have been suggestive in the making of the outlines of things that can profitably be done in school surveys: Baltimore, Maryland; Boise, Idaho; Hamilton, Ohio; Newburgh, New York; New York City—particularly the Interim Report by F. C. Howe and F. J. Goodnow; Portland, Oregon.

For personal suggestions I am indebted to Professors S. C. Parker, J. F. Bobbitt, M. E. Haggerty, and G. D. Strayer. To Professors Strayer and Parker I am especially indebted for valuable criticisms touching the points to be included, their final organization, and the phraseology of certain portions of the paper.

GENERAL PRINCIPLES

Underlying the preparation of this paper there are three controlling purposes: first, that of reviewing briefly some of the present pressures urging careful study of local school situations; secondly, that of indicating the forces that can most safely and profitably be intrusted with making local surveys of school conditions, and finally, that of suggesting a possible method of approach to the problem of making an educational survey in cities of from five to fifty thousand inhabitants.

Education is no longer the simple process that it once was. From haphazard imitation a progressive step was made long ago toward conscious effort to teach in a systematic way. Ultimately this tendency crystallized among the favored classes into the practice of having a single individual teach a single child one subject at a time. From the demand that a single child be taught a single subject by a single individual we have progressed to the point where children in large groups must be taught, not simply a single subject, but the three R's, and not simply the three R's, but many additional subjects also. Modern education, too, is no longer limited to the intellectual field, but extends into the physical and the moral as well. Besides all this, the present-day school system is called upon to educate, not simply the children of from six to fourteen years of age, as formerly, but kindergarten children, youths, and adults, also. Moreover, these kindergarten children, youths, and adults are to be trained, not simply that they may make a better living for themselves and that they may also serve in the maintenance of the best that has been experienced thus far by the race, but, further, that they may make actual contributions to the knowledge that the race already possesses. With this increase in the scope of the things to be taught, in the variety of individuals to be taught, and in the purposes behind the teaching, the element of complexity has developed to such an extent that thorough organization has become essential. Devices are needed to aid the mind in grasping the situation, and in focusing the attention of educators on individual parts of the school system while they at the same time carry in mind the idea of the whole.

So rapidly has this complexity been forced upon us that we sometimes feel lost in the maze of it and realize the inadequacy of the organization that has been thus far developed to meet it. The need of a careful examination of our product to see whether it meets expectations or not continually forces itself upon our attention. A further problem is at present formulating itself, and that is the desirability of an examination to determine whether we are teaching the things actually needed by pupils in the public schools.

In order to aid in the intelligent solution of these two problems the survey has recently been called into service—the educational survey to reveal just what we are doing with the children we are working upon and just what the conditions are under which we are working, and a more general survey including social, mercantile, and industrial surveys, to

determine whether we are giving an education that the local situations justify.

In order to determine with reasonable accuracy just the things that are essential in the education of the people of any community, a social survey is necessary. The more complete such a survey is, the better it furnishes a setting or a background upon which to make the educational survey.

Without such a survey unintelligent conclusions might readily be drawn from the educational survey of actual conditions in the schools of the community. For this reason it is desirable, if possible, to make a preliminary but comprehensive social survey comparable to those made in Pittsburgh, Pennsylvania, Springfield, Illinois, and Syracuse and Newburgh, New York, including a study of health conservation and sanitation, housing conditions, betterment agencies of the city, foreign population, juvenile and adult delinquency, civic improvement, labor conditions, municipal accounting, public finance, local taxation, vital statistics, playground equipment and needs, occupations for youths and adults. Ultimately such a detailed survey will be necessary in order to provide adequately for the various interests of the total social group. Our democratic ideals drive us finally to such a survey. But where such an elaborate collection of data cannot be adequately made and interpreted it is well to begin with a less extensive plan. A survey much less pretentious could profitably be made which would aid greatly in interpreting the adequacy of educational facilities.

The following extract from Carol Aronovinci's *Knowing One's Own Community* is suggestive in connection with the scope and the starting of a general survey.

STARTING A SURVEY

A survey, like any other civic activity involving a conscious effort on the part of a group of citizens, must be started by some particular civic or philanthropic agency, some body of men or women interested in the welfare of the people whose intentions cannot be questioned and whose integrity, good judgment, moral and political standing are beyond reproach. Most small cities and towns have a Charity Organization Society, a Young Men's Christian Association, a Board of Trade, a Business Men's Association, a Grange, a large Women's Club, a University Club, or some other similar organization or agency which is backed by prominent men or women or both. The person or persons interested in making a survey should select the most prominent, the most

respected, and if possible the best financed organization in the community to back the work The main conditions to be observed in selecting the organization should be as far as possible a complete absence of sectarian affiliations, political color, or special industrial or public-service interests.

When the organization has been decided upon, a carefully selected special committee of persons from various walks of life should be appointed with instructions to plan and organize the survey under the auspices of that organization. This committee should not be so large as to be unwieldy, nor so small as to be in danger of being one-sided or not representative of the best elements in the organization. A committee of ten persons in localities under ten thousand population and of fifteen to twenty in localities over ten thousand with special subcommittees would probably prove most efficient.

SCOPE OF SURVEY

A survey should cover as far as possible every phase of community life, advantageous and disadvantageous, that time and available energy can secure, but if selection of specific problems is made either for the purpose of beginning the work or because of limitations of time and working force, the lines of investigation selected should be practical, should have in view improvements affecting as many people as possible, should be easily understood by the masses, and should be measurable in commonly accepted quantities. If the supply of milk is bad an investigation into the sources of milk and the passage of proper regulations for the control of the milk supply will soon show results that can be measured in terms of a material reduction in the infant mortality and morbidity. If the schools are spending large amounts of money with meager results, an investigation into the accounting system of the school department, a study of the physical conditions of the children, and visits to the homes of backward and truant pupils will soon reveal the cause of the inefficiency in terms which can be easily understood and almost as easily remedied.

Stated in brief, a survey must follow lines which are of a practical character and must have in view tangible improvements which are easily understood and most generally desired.

OUTLINES FOR SOCIAL SURVEY

A fairly adequate social survey is illustrated by that being made at present by the high-school and departmental grade teachers of Bloomington, Indiana. The following outlines for gathering the data desired have just been agreed upon by the committee appointed by the high-school teachers for drawing up a plan.

MERCANTILE SURVEY OF BLOOMINGTON

STATUS OF FIRM

1. Firm name . . . . . .
2. Location . . . . . .
3. Mercantile pursuit . . . . . .
4. Commodities
   a) Main line . . . . . .
   b) Side line. . . . . .
5. Character of firm (*partnership, corporation, co-operative, profit-sharing*)
6. Amount of capital . . . . . .
7. Number of stockholders . . . . . .
8. Are stockholders resident or non-resident? . . . . . .

STATUS OF EMPLOYEES

1. Welfare activities in behalf of employees . . . . . .
2. To what extent are employees stockholders? . . . . . Profit-sharers? . . . . . .
3. Special privileges extended to employees . . . . . .
4. Are vacations granted on the firm's time? . . . . . .
5. Promotions:
   a) What factors determine? . . . . . .
   b) How frequent? . . . . . .
   c) Grades—e.g., are managers and departmental heads chosen from lower grades? . . . . . .
6. Desirable age for beginners . . . . . .

FIRM'S ATTITUDE TOWARD SCHOOL TRAINING OF EMPLOYEES

1. How may the public schools prepare employees more efficiently? . . . . . .

2. How have the schools hitherto successfully or unsuccessfully contributed to such preparation?

3. What changes in courses or methods would you suggest for more practical training?

4. Will the business permit employees to attend part-time day-schools?

5. Will evening schools be feasible for mature employees?

EMPLOYMENT

1. Kinds:

	No	Hours per Day	Weekly Wage	No Months per Year	Extent of Vacation
a) Skilled					
1. Managerial					
2. Clerical					
3 Selling					
4. Special					
b) Unskilled					
Manual, etc					

2. Sources of supply of employees

3. Proportion of men and women

Information supplied by

Official position

Interview conducted by

Date

SOCIAL SURVEY OF CITY OF BLOOMINGTON

FAMILY:

Last name Given name Street and No.

Name of father, if living

Name of mother, if living

Nationality of father

Nationality of mother

Color

Birthplace of father

Birthplace of mother . . . .
Male children, ages . .. .
Female children, ages . .. .
Number of cases of illness during past year . . Parents . . Children . . .
Character of illness . . . . . .Length of illness . . . .
Length of residence of family in Bloomington.... ... .
Number of different school corporations family has lived in.. .. . .
Grade in which father left school... ....
Grade in which mother left school... . . ..
Male children who have left school, left in what grades?... . . . .
Reason for leaving... ....
Female children who have left school, left in what grades? ... .
Reason for leaving..... .. . .

HOUSING:

**Kind of house*.. . . . .
Condition, inside. .... *Outside.* .. ..
Number of families in building.. . .. .
Number of rooms .. . . Size . . . .
Number of sleeping-rooms. ... .
Window provision ample?.. ... .
Number of dark rooms..... .. ..
Cellar . . .Sewer connections . . .Cesspool .. ..Plumbing. .. ....
Water supply, well. ....Cistern .. .. City service ... .
Toilet, inside..... .. ..Outside. ....
Lighting ....Method of garbage disposal.... .. . .
Front yard.... ....*Back yard*... ....
Cooking done at home... .. ..
Heating: Stove . .. . .Furnace.. .. Hot water . .... Steam.... ...
Furniture, quality of. ....*Ample* .. ..
House owned.... ....How purchased?..... ....
Mortgage. . ... .Lodgers or boarders ....
Bathing facilities. ....
General cleanliness and order..... .. ..
General condition of streets and alleys adjoining property..... .. . .

INCOME:

Earnings of father, weekly..... ..... monthly .... yearly... .. ..
Earnings of mother, weekly.....monthly .... yearly... .. ...
Earnings of children separately..... . ...
Income from other sources..... .....Total income..... . .. .

SAVINGS:

Bank deposits..... . .. .Trust company deposits..... . .....
Building and Loan Associations.....Postal... ....
Life insurance..... . ...
Property insurance. ....Chattel loans. ....Rate.. .....
Purchase on instalment.... ....

**The italicized questions are not to be asked, but are to be filled out by surveyor*

EXPENSES:

Rent Clothing Food Fuel Lighting
Recreation and amusement Travel Taxes
Dues and contributions Other items.
City water.

INDUSTRIAL STATUS:

Occupation of father, hours Day or night labor
Occupation of mother, hours Day or night labor
Occupation of children that work, hours Day or night labor
Occupation of relatives living with family, hours Day or night labor

SOCIAL CHARACTERISTICS

Church membership, father... Mother
Church attendance, father ... Mother
Sabbath-school attendance, father Mother Children
Number of children in public schools....
Club membership, father Mother
Fraternal orders, father ... Mother
Labor organizations, father
Means of recreation, father Mother Children
Charity received
Character of reading
Interest in music.
General moral status.
Does father drink? *Gamble?*
Date *Surveyor*

INDUSTRIAL SURVEY OF BLOOMINGTON

1. Firm name
2. Distribution of laborers as regards kind of employment.
   a) Laborers
   b) Skilled workmen.
3. Source of labor supply.
4. How may the public schools prepare employees more efficiently?
5. How have the schools hitherto successfully or unsuccessfully contributed to such preparation?
6. What changes in courses or methods would you suggest for more practical training?
7. Will the employment permit employees to attend part-time day-school?
8. Will evening schools be feasible for mature employees?
9. What special aptitudes and qualities (physical strength, dexterity, mental alertness, etc.) are considered most valuable in each line of employment?

Information supplied by
Interview conducted by Date

	Type of Skilled Labor	Number	Hours	Salary Maximum	Salary Minimum	Length of Time It Takes to Become Proficient in	Overtime Requirements	No. Days Work per Week	Work of a Seasonal Character	Causes for Seasonal Employment	Occupational Risks
1		.									
2		.								.	
3	.				.	.					
4				.		.					
5						.			.		.
6			.								.
7	.								.		
8		.						.			. .
9	.	.							. .	.	. .
10	.	. .	. .			.			.	. .	
11	.	. .	.	. .		.	. .	. .	.	. .	. .
12		. .	. .	.		.	.	.		. .	. .

The gathering of the above data is done by the teachers themselves. The tabulation of the data will be done largely by clerical help. The final interpretation of the data will be made by the teachers, principals, and superintendent.

The educational survey proper should be made along lines in which standards of measurement have already been fairly well worked out, standards applicable to the construction, equipment, and maintenance of the school plant, to the qualifications, selection, and tenure of office of superintendents, principals, teachers, janitors, and other employees, to the course of study, to enrolling and holding individual pupils, and finally to measuring the quality of the performance of pupils in their school subjects.

In connection with some of these points, such as the construction and equipment of buildings, standards have been fairly well worked out for some time. These are adequately set forth in *American School*

Houses by Professor Fletcher B. Dresslar. Dr. Franklin Bobbitt, of the University of Chicago, is gathering some data that will ultimately be helpful along this line. The mimeographed blanks that he is using in gathering these data he will gladly furnish free of charge to superintendents within the North Central territory. Subjective standards have been used for a long time in measuring the quality of teaching done, but only recently have serious attempts been made to measure the quality of teaching by an objective measurement of the knowledge possessed by the subjects of the teaching. Among the most efficient and recent of the objective measures are:

1. Scales for measuring the quality of handwriting: one by Dr. Edward L. Thorndike and one by Dr. Leonard P. Ayres.
2. A scale for the measurement of quality in English composition by Dr. Milo B. Hillegas.
3. Spelling ability—its measurement and distribution—by Dr. B. R. Buckingham.
4. Arithmetical abilities, by Dr. C. W. Stone.
5. A series of tests by Dr. S. A. Courtis on arithmetic, reading, composition, punctuation, spelling, syntax, memory, and handwriting.
6. The measurement of achievement in drawing, by Dr. Edward L. Thorndike.

In the *Twelfth Yearbook* of the National Society for the Study of Education, Part I, "The Supervision of City Schools," Dr. Franklin Bobbitt presents a good discussion of the use of such tests for exact measurement purposes.

The Thorndike scale for measuring the quality of handwriting can be obtained from the Bureau of Publications, Teachers College, 120th Street and Broadway, New York City. The separate scales cost five cents each.

The Ayres scale for measuring the quality of handwriting can be obtained from the Division of Education, Russell Sage Foundation, 130 East Twenty-second Street, New York City. Price of scales, five cents each.

The Hillegas, Buckingham, and Stone tests are all published by the Bureau of Publications, Teachers College, New York City. The price of the Hillegas scales is two cents a copy; the Buckingham scale costs $1.25 in cloth and $0.95 in paper; the Stone tests are $1.00.

The Courtis tests may be secured by writing Courtis Standard Tests, 82 Eliot Street, Detroit, Michigan.

Tests complete in sets ready for use:

Series A, Arithmetic, per thousand	$20 00
Series B, Arithmetic, per thousand	18 00
Series C, English, per thousand	20 00
Test 7, Series A, Loose sheets including necessary instructions and record sheets, per thousand	10 00
Folders of instructions, each	.05

With all of these helps supplemented as they will be very shortly by standards in many additional fields worked out under the supervision of Dr. Thorndike, it will be possible to measure the efficiency of any system of schools with a measure more tangible and less variable than that of personal opinion.

The following extracts from the report of the Committee on Standards and Tests for Judging the Efficiency of Schools and Systems of Schools, presented by Dr. George Drayton Strayer, is suggestive of the range of school conditions that lend themselves fairly adequately to objective measurement:

What methods are to be employed in an efficient school survey? A school survey will naturally aim to deal with those phases of school organization which are capable of exact objective review. Thus the financial management of the schools should be taken up. The physical equipment of the schools should be examined. The attendance at schools, including the question of enforcement of the compulsory attendance law, can be definitely determined. The rate of promotion within the grade can be definitely known. The number of children in a given classroom should be ascertained; the provisions that are made for exceptional children, including defectives; the method of training teachers, their qualifications, the method of their appointment, and the method of eliminating inefficient teachers should be considered. The salaries of teachers and the rules governing their tenure of office; the provisions that are made for the improvement of teachers during the period of their services; the organization and functions of the supervisory staff and the efficiency with which they carry out their work, especially with reference to their conduct with the classroom exercises; the efficiency of instruction, including an examination of the courses of studies; the methods of class instruction, including the variations in these methods of class instruction, the variations of these methods which are to be observed in the different parts of the system, and the measurement of the achievements of pupils in the subjects commonly taught:

all will be subject to careful review. There should also be made an examination of the provisions which exist within the system for recording such data as are necessary for the proper study of educational problems, together with recommendations concerning the use to be made of these facts.

Any school inquiry should, so far as is practicable, observe, measure, and report the conditions of the community's political, industrial, social, and educational life which favor or interfere with the work of the schools. Investigators should dwell upon the achievements of the school system, especially noting the direction in which it is moving. The measure of the efficiency of any school or system of schools must always be made in terms of the changes, developments, improvements, or growths in efficiency which have taken place under a given administration or during a given period of years.

After determining that an educational survey is essential to progress the question arises, "How can and should the survey be made and by whom should it be made?" There are school officials who feel that they themselves can take adequate care of their own school affairs and who consequently fail to welcome what they term interference from the outside in an attempt to point them to the light. There are those, too, on the outside who feel that practical school men are not among the elect as far as knowledge of what they should do and are doing is concerned, and can therefore be trusted with the job of overhauling themselves only at great risk and danger. There is, on the one hand, the attitude of self-satisfaction that begets a lazy, unintelligent conservatism that needs to be jostled out of its routine ruts, and such an attitude naturally brooks no foreign interference. On the other hand, there is the attitude of the outsider who sometimes feels that his genius alone is sufficient to delve to the bottom of existing difficulties and not even the aid of a native in holding a candle while he works is tolerated.

There is some foundation for the feeling that reform from within is initiated with difficulty. Those within a system are naturally controlled by traditions, and consequently travel the blazed trail without seeking new paths. Even philosophers tell us that schools of philosophy develop and tend to build a crust around their theories, so that new ideas can with difficulty penetrate current thought. Concentration on the old ways of doing things tends to enhance ignorance and to blind individuals to their own faults.

Aside from ignorance and the hampers of tradition, there is another reason, plausible on the surface, why a school system should be reformed

from without, namely, the tendency of human nature to defend past action and thus to furnish protection against adverse criticism. This argument is based on the assumption, however, that people are ultimately dishonest, a supposition that can scarcely be maintained, I think. Even if the supposition were correct, it would argue, in the long run, in favor of local authorities having a part in the survey in order to make it easier for them to discover, acknowledge, and correct the faults in the system.

Any school system needs expert direction and suggestions in connection with its surveys in order to avoid the pitfalls suggested above, but this concession does not carry with it the conclusion that the survey should be made wholly independently of the aid that the system itself can give.

The conventional habit of teachers of looking to superintendents and supervisors for all reforms has limited the possibility of teachers doing constructive work themselves; and the assumption of a similar attitude by school officials to the effect that they must have outsiders do all constructive work for them will tend to conceal from them and from society their own possibilities in the line of constructive work. In principle, then, the attitude of experts in feeling that school administrators cannot examine adequately their own work, even under direction, is vicious in character and harbors a tendency that the spirit of democracy has been vigorously attempting to shake off for centuries past. Just as any set of experts would rightly resent the assumption that an outside interest could properly diagnose their work without their help, so the school officials in any community, however benighted through ignorance and shackled by tradition, can justly assume that their suggestions and help would be valuable to outsiders in discovering points of strength and weakness. It is not the contention that every community is able of itself to initiate or even to carry out a reform movement, but rather that each community possesses the latent ability to be of invaluable service in such a reform under proper, unprejudiced guidance from without. It would doubtless be necessary to impart some leaven from the outside to stir up latent possibilities, but once these possibilities should be stirred up, set in motion, and directed, they should be able of their own momentum in a vast majority of cases to continue to pour out valuable results. If a locality is blind to its faults, that blindness cannot be cured by someone's saying: Behold! and then pointing out what there is to be seen. A more fundamental cure is necessary, and that cure is to lead the

benighted to the light of experience. The light of experience can come only with actual participation in the work.

To the argument for actual participation in the work by local school officials and the teaching corps itself there seems to be only one valid objection and that is the objection that such a survey stretches over too long a period of time. It is true that such a survey is a slower process than a survey made by outside experts, because the outside experts can devote all of their time to the one thing. Wherever it is essential that the survey be completed in a limited period of time the work should not be crowded on to the local teaching corps. Generally, however, the demand is not so insistent as to necessitate depriving local forces of the privilege of doing a large part of the actual survey work.

Assuming then that an adequate survey can be made by the school system itself under expert advice and guidance—and this assumption is certainly as sound as the opposite assumption until it is proved by trial to fail—we should examine in what way the results would be more desirable from such a survey than from one made wholly by those on the outside.

In the first place, defects are bound to be discovered by any adequate survey in even the best system of schools, and if these defects are to be remedied there must be a readjustment of the school officials to the new light unless the officials be simply ousted and new people be put in their places. Experience shows that the damage from the latter procedure is sometimes as bad as the original condition with its blindness to faults. Experience shows further that it is easier to adjust one's self to self-criticism than to criticism imposed from without. And the ease of making the new adjustment is an essential consideration in any procedure that is not merely destructive but constructive as well.

In the second place, the educative effect upon local authorities who make a survey themselves is of significant importance. Knowledge to the saturation point can come only by actual participation in the work. The mere review of results and conclusions slides off in a way that is readily understood by the teacher as opposed to the teller. With the full comprehension of the meaning of the survey—a comprehension that can come only through actual participation—comes not only a new consecration of service to the general problems of the profession and a more genuine willingness and inspiration to follow results revealed by the particular survey, but a more genuine knowledge of how to grapple with the perplexities that must continually confront school officials.

Not only are people more willing to correct and more capable of correcting errors that they themselves have had a hand in locating, but by so doing they disarm any tendency of local enemies to cast irreparable reflection upon the system or to make political capital out of the findings. The very fact that those within the system have discovered their own weaknesses is an argument that somehow or other they themselves will be able to eradicate these weaknesses. Hence the danger of an unwarranted clamor for a change in administration is reduced to a minimum.

Everyday observations and practices support the contention that errors should be discovered and cured largely from the inside. Forced reform and forcing attention to the need of reform are two very different things. The reform must take place within the individual, and the individual must himself feel the need for it through self-discovery, though the start toward that discovery be stimulated from the outside. An outside influence can only direct internal effort to a change. It cannot work the reform. And I take it that we do not want to lodge in our activity in school surveys on the level where we so long tarried in medical inspection—the plane of pointing out conditions without concern as to their ultimate remedy. Our democratic theory of freedom should operate at least to the extent of giving school systems an opportunity under capable guidance to diagnose their own cases and to work the consequent cure before demanding meek submission to the invasion of the foreigner and the putting on of the foreigner's habit in the solution of the difficulty.

A final though a minor argument for surveys by the local authorities is that of decreased cost. In the case of a local survey the workers and the machinery are both on the field, so the cost of transportation is eliminated. Salaries too are largely already supplied in the case of local investigation, whereas these are an added burden when surveyors from abroad are imported.

The self-survey under competent outside expert direction gradually forces itself upon one as opposed to the survey by outside experts because of the smaller financial cost, because of the avoidance of internal community eruptions stimulated by radical conclusions deduced from statistics unsympathetically gathered and interpreted, because, further, of the wholesome educational and stimulating effect of such a self-examination upon the whole teaching and supervisory corps of a school

system, and because, finally, such a work is the logical job of those already employed to determine and carry out the policies of the school system.

The following extract from the report of Professor G. D. Strayer, chairman of the Committee on Standards and Tests for Judging the Efficiency of Schools and Systems of Schools, presents briefly the opinion of this committee on this subject:

A survey can be most advantageously undertaken by the school officers. If the citizens wish to have a survey made they ought to be able to secure it through their regular representatives on the board. Groups of citizens who cannot secure such action through the board should be provided with means of carrying out a survey, and should feel justified in adding temporarily to the supervisory staff a group of specialists competent to undertake a thoroughgoing inquiry. Furthermore, the superintendent ought to be in position at any time to call in impartial professional advisors in case he finds school interests seriously jeopardized. Whether the survey originates with the superintendent, or with the board, or with an interested group of citizens, its purpose should be to protect and advance the interests of the children and youth of the community by employing specialists, either within or without the system, competent to study scientifically the school system, and able, by virtue of their experience as educators, to propose adequate and workable reforms.

The following extracts from letters written in reply to an inquiry for statements of attitude toward the co-operative plan of conducting school surveys makes clear the advisability of enlisting the services both of university experts and of local school people in school surveys:

W. C. BAGLEY, Director, School of Education, University of Illinois, Urbana, Ill.: I may say that we are very desirous in our department of co-operating in every helpful way with those who are conducting school surveys in our state. The Illinois State Teachers' Association, at its meeting in December, adopted a resolution favoring a state school survey to be made by the State Department of Public Instruction in co-operation with the School of Education at the University, the normal schools, and other educational institutions of the state. Pursuant to the spirit of the resolution a survey has been planned and the preliminary steps are now well under way. Professor Coffman is director of the survey and Professor Johnson, Professor Bobbitt of the University of Chicago, and myself are co-operating in the investigation of certain specific topics.

There are, of course, certain dangers that are involved in placing the leadership of these surveys in the hands of the educational departments of the

universities. I should say, however, that these dangers are quite overbalanced by the advantages which this policy involves.

PROFESSOR J. F. BOBBITT, School of Education, University of Chicago: The superintendent of a neighboring city recently proposed a survey for his school system, to be conducted by men from the University. While the response of teachers and principals was on the whole favorable, yet there were a few who asked, "Why should not you, the superintendent, make all necessary analyses of school conditions, point out merits and shortcomings, and make all the desirable recommendations? Why call in men from the University?"

Undoubtedly, as the questions imply, it is the superintendent's chief function to do just these very things, currently and continuously, for his school system. And yet there is, at the same time, full justification for an occasional analysis of school conditions by someone who is not a permanent member of the system, however good may be the work of the schools. While the members of the school organization have a far more intimate acquaintance with the details of the school work than any co-operating or temporarily employed outsider can possibly have, yet this very familiarity with the details of the work, filling as it does so large a portion of the field of vision, tends naturally and inevitably to shut out a sufficient view of the more general relations. A thing is to be seen in wide perspective only by one who can stand some distance away from it and view it as a whole, disinterestedly and objectively. One's vision must not be distorted by personal interests, personal acquaintances, and the forms of bias and prejudice that spring from these. However superior, therefore, may be the teaching and supervising staff of a city-school system, it seems desirable for a city to have periodically some disinterested outsider examine into the factors composing the educational situation.

It is in fact a necessary division of labor. The teachers and supervisors of the city are specialists in the details of that particular situation. The co-operating university workers are specialists in the more general relationships of educational movements. It is the business of the university men to see these movements as they exist throughout the country; it is the business of superintendent and teachers in a given city to see these movements in their concrete details as they exist in their particular city. Efficiency in both kinds of work is not easily possible under present conditions.

This specializing of functions and co-operating of the specialists is especially desirable during our present transitional age when our school systems are being thoroughly overhauled and reconstructed. The changes demanded require thought, study, and arduous, long-extended labors on the part of teachers and supervisors. Completely engrossed in the task of making the particular adjustments needed at the time, it is difficult to keep in mind the total movement of which the immediate tasks are but parts. They cannot well be sure as to the

next steps to be taken in any given case. They have distinct need of the specialist in the wider relations.

LOTUS D. COFFMAN, University of Illinois, Urbana, Illinois: In a number of states the movement to survey the public schools was initiated by people not officially connected with the schools. But in Illinois the survey now being organized was begun by the school people themselves. That this state might not prove a laggard in educational advancement, a number of men and women, representing every type of public education in the state, met in Springfield in response to a resolution passed by the last State Teachers' Association, calling for a state-wide educational survey, and appointed an executive committee consisting of President David Felmley of Normal, chairman; Superintendent Hugh S. Magill, Jr, Springfield; County Superintendent Charles McIntosh, Monticello; and Principal Morgan C. Hoggs, Chicago. Dr. Lotus D. Coffman of the University of Illinois was made an *ex-officio* member of the Executive Committee and director of the survey.

Faith in the possibilities of this survey is founded upon the number of agencies that have expressed a willingness to co-operate in carrying it forward. State Superintendent Francis G. Blair has authorized the committees to collect as much of the information as possible through his office and has offered the assistance of his statistical experts in collating the material. Assistance will be received from the State Teachers' Association and its large sectional organizations, the Principals' Club, the University of Chicago, Northwestern University, the normal schools of the state, and the University of Illinois.

HON. P. P. CLAXTON, United States Commissioner of Education, Washington, D.C.: I think your suggestion that universities should co-operate with school officials in making school surveys is a good one. Neither the university man nor the school man alone is capable of making the best survey. Both working together ought to make the survey much more valuable. It would be still more valuable if the university man and the public-school man and the business man could co-operate. The points of view of these are needed in making any adequate survey of a school system.

ELLWOOD P. CUBBERLEY, Leland Stanford Junior University, Stanford University, California: If school surveys are made in an appreciative spirit they can be made a very great help to city-school systems. Such surveys can best be made by those who have carefully studied the educational problem and who can approach the work of a survey with the idea of finding out the excellences of the system as well as its defects. I think we are not likely to have too many good surveys; but of investigations, as contrasted with surveys, we need very few. A good survey is in the nature of a taking of stock with a view to further purchase and development, and a school survey ought to offer a good constructive program for the community surveyed.

EDWARD C. ELLIOTT, University of Wisconsin, Madison, Wisconsin. I believe most heartily in the form of co-operation referred to in your letter of April 2 relative to school surveys. I believe the survey affords the most practical instrumentality for the accomplishment of what has always seemed to me to be the fundamental purpose of all such supervision. This purpose may be very simply summed up thus:

To discover the truth about our institutions of education in such form and in such manner as will make our profession of citizenship more intelligent as to the motive, methods, and machinery of the whole school plan and to cause our profession of education to be more directly purposeful and more consciously constructive.

If I were to analyze the above general purpose I would call attention to the following special items which seem to me to warrant attention on the part both of university students of education and of those engaged in actual practice in schools: (1) There is too wide a gap between our theories of education and our practices in schools. (2) There is too much pretense of teaching and school supervision, and, consequently, too little economical performance of fundamental educational worth. (3) We have had too few facts on which to ground whole truths about the productivity and economy of the public-school system. (4) We lack that kind of publicity necessary for the intelligent confidence of our people in their schools. (5) Our school systems move forward by drifting through the channels of least resistance, or, of greatest attractiveness, rather than by an intentional direction through the intricate passages that lead to the greatest ultimate utility.

W. A. JESSUP, University of Iowa, Iowa City, Iowa: Educational interests are to be congratulated on account of the present tendency to conduct school surveys by means of the co-operation between university experts and local school officials. Each institution has much to gain from this type of co-ordination. The school survey needs the expert ability, the scientific attitude, and the vision of the professor of school administration. The university, on the other hand, needs to come into contact with the real problems to be found in the development of an educational system.

G. D. STRAYER, Teachers College, Columbia University, New York: It is my belief that the specialist should be called in by the local administration for the purpose of giving advice when a school survey is to be made, for exactly the same reasons that specialists in other lines of study and investigation are used in their fields of inquiry. We are all familiar with the rôle played by the specialists in taxation, or in engineering, or in preventive medicine, and the like, in practical affairs. I am inclined to think that the combination of the practical administrative officer and of the student and investigator will always mean a higher degree of efficiency in the survey of a school system than can be expected if either works alone.

HARLAN UPDEGRAFF, University of Pennsylvania, Philadelphia, Pennsylvania: In my judgment, boards of education or superintendents, or both in unison, are warranted in calling upon educational experts in universities to express their opinions regarding the advisability of possible courses of action or the continuance of a policy that has been on trial. Such an expression may also serve a useful function in making known to a school board and citizens the status of their school system as compared with systems elsewhere, such knowledge to be used as a basis for determining further policies.

Professors of education in universities have peculiar advantages for such service in that they are well informed as to the latest developments in their respective fields and also in that they have opportunity to examine impartially the success of various plans in the schools that are visited by them. Particular care should be taken by such persons called upon to render this service that they gain a full and correct knowledge of the peculiarities of the local situation in which the inquiry is made. This is not always possible in the brief time that is sometimes allowed for these inquiries and herein lies a limitation to the usefulness of their service.

Two outlines follow, one a brief outline intended to be suggestive of some of the more important things that might be considered in a limited study of local educational conditions; the other a more elaborate outline given in the spirit of suggesting a range of subjects that might profitably be investigated in an educational survey of a small city system of schools. In no one system would it be desirable to attempt in any survey an investigation of all or of even a large part of the points suggested in the longer outline.

A BRIEF OUTLINE FOR AN EDUCATIONAL SURVEY

SCHOOL PLANT AND EQUIPMENT

I. General Facts about Each Building.
   1. Description of location.
   2. Floor plans.
   3. Dimensions, original cost, date of erection, and present condition.
   4. Material used in construction.
   5. Protection from fire.
   6. Heating and ventilating systems, description of.
   7. Number, purpose, and size of various rooms in building.
   8. Number of teachers and pupils accommodated
   9. Adequacy of steps and stairways for age and number of pupils accommodated.
   10. Drinking and washing facilities.
   11. Toilet accommodations.

II. Specific Facts about Each Room.
  1. Use made of room.
  2. Number and grade of pupils accommodated.
  3. Seating.
  4. Dimensions and size showing:
    a) Cubic feet of air space per child.
    b) Square feet floor space per child.
  5. Blackboards.
    a) Amount of available space.
    b) Condition of.
  6. Lighting.
    a) Light space area compared with floor space area.
    b) Height of top of windows compared with width of room.
    c) Freedom from shadows cast on children's work.

III. Equipment of Building as a Whole.
  1. Number, kind, and value of library books.
  2. Same for musical instruments and equipment.
  3. Same for other equipment like stereopticon, lantern slides, etc.
  4. Same for sets of supplementary readers.
  5. Same for equipment, such as wall maps and globes.

ORGANIZATION, ADMINISTRATION, AND SUPERVISION

I. General Organization.
  1. School Board.
    a) Number, term, and method of selection of members.
    b) Qualifications required for membership.
    c) Qualifications of present board and of boards for a period of years past.
    d) Meetings.
      (1) Time and place.
      (2) Regularity of attendance.
      (3) Contents, preparation, and preservation of minutes.
      (4) Powers and duties.
        (*a*) Exercised by board.
        (*b*) Delegated by board.
  2. Superintendent.
    a) Qualifications required and term of office.
    b) Qualifications actually possessed by superintendents for a period of years back.
    c) Powers and duties.
    d) List of things actually done in a period of time of from one to four weeks showing range of duties and relative amount of time devoted to each.

e) Assistance given superintendent—
(1) By clerks.
(2) By assistant superintendent, or
(3) By principals being given time off from actual teaching.

3. Principals.
a) Qualifications required.
b) Qualifications possessed by present corps.
c) Duties required of principals.
d) List of such duties performed in a definite period of from one to four weeks in length.
e) Time free from recitation duties.
f) Assistance given by clerk.

4. Co-ordination of authority vested in school board, superintendent, principals.

II. Business Administration.
1. Methods of bookkeeping.
2. Filing system.
3. Methods of purchasing, distributing, and keeping track of supplies.
4. Samples of important reports and records regarding attendance and progress of pupils.

III. Educational Administration.
1. Teaching corps.
a) Qualifications required.
b) Qualifications actually possessed by present corps.
c) Permanency of.
d) System of improving qualifications of teachers already in the service.

2. Supervision of actual schoolroom teaching.
a) Statement of various things done within a limited period of time in an attempt to improve the classroom work of some specific teacher.
(1) Things done by superintendent.
(2) Things done by principals.
(3) Things done by special supervisor.

3. Supervision of course of study.
a) In making course of study, to what extent are services enlisted of—
(1) School board?
(2) Superintendent?
(3) Principals?
(4) Teachers?
b) Illustrate by use of a specific subject the method by which co-operation is secured.

COURSE OF STUDY

I. Different Subjects Included in the Course.
   1. Very brief outline of the course in each subject.
   2. Amount of time allowed to each subject per week in each grade.
      a) For preparation on part of pupil.
      b) For recitation.
   3. Time required for average child to complete each portion of the course.
      a) In primary grades by years only.
      b) In department and high school by years and subjects.
   4. Percentage of total failures that each year and each subject takes as its share of the failure toll.
   5. Number of pupils and percentage of total enrolment in the grade taking each subject where an option is given.
   6. Organization of course to meet varying individual and classroom abilities.
   7. Titles and cost to pupils of public schools of textbooks in use.

THE CHILD

I. School Census.
   1. Frequency and method of taking.
   2. Census statistics.
      a) Enumeration for a series of years past by years, age, sex, nationality—showing percentage of increase or decrease in each.

II. Enrolment Statistics for Purpose of Showing Efficiency of System in Getting Pupils into School.
   1. Enrolment for series of years past by age, grade, nationality, sex, time of year, occupation of parents.
   2. Average age of beginning pupils—ages taken September 1 and February 1.
   3. Number, age, and percentage by grades of pupils entering the system each year from outside systems of schools.
   4. Number, age, and percentage by grades of pupils who have had all of their education in the local system.
   5. Ratio of number of children in school over compulsory age to number within compulsory age. Degree to which this ratio is increasing or decreasing.
   6. Machinery for getting children into school.
      a) State law provisions.
      b) Local initiative.
      c) Promptness of reporting and disposing of cases.
      d) Percentage of cases that have to be dealt with once, twice, three times, etc.

III. Holding Power of School
  1. Power of school to keep pupils on membership roll.
    a) Age-grade tables by sex, buildings, and by combination of buildings.
    b) Tables showing years in school and progress made by sex and buildings.
    c) Percentage of old, young, or normal age for grade by sex and buildings.
    d) Number and percentage of pupils, by time of year and grades, above compulsory school age leaving school.
    e) Kind of pupils eliminated—dull, fair, bright.
    f) Percentage that enter any one grade that persist to the next grade.
  2. Maintenance of regular attendance of pupils on membership roll.
    a) Percentage of attendance by sex, grades, buildings, rooms, months.
    b) Tardiness—same as under *a*.
    c) Attendance table by number of days attended during year.

IV. Degree to Which Pupils Make Regular Promotions.
  1. Failures.
    a) Percentage of failures by age, grade, subject, sex, building, rooms.
    b) Effect of failure on succeeding term's work.
      (1) In subjects failed in.
      (2) In subjects passed during first term.
  2. Repeaters.
    a) Tables by age, grade, subject, sex, buildings, rooms.
    b) Percentage of increase or decrease for a period of years
    c) Cost to system to reteach repeaters.
  3. Retardation and acceleration statistics.
  4. Distribution of withdrawals as to age, grade, building, etc.

V. Quality of Passing Work Done by Pupils.
  1. Distribution by sex, grades, subjects, buildings, of grades made, showing number and percentage of grades made falling in the various groups as failing, fair, good, excellent, etc.

VI. Measures to Preserve Health and to Protect Life.
  1. Protection from fire.
  2. Sanitary precautions in care of buildings.
  3. Physical training facilities.
  4. Hygiene of instruction.
    a) Specimen schoolroom programs showing various combinations of grades.
    b) Amount of home study required, by grades.

5. Medical inspection.
   a) Kinds and frequency of examinations of buildings, children, and employees.
   b) Relation of defects discovered to defects remedied.

VII. Tests to Discover Actual Efficiency of Pupils.
   1. General efficiency.
      a) Binet-Simon tests to be given to backward children.
   2. Efficiency in school subjects.
      a) Courtis tests.
      b) Writing tests—either Thorndike or Ayres.
      c) Hillegas—test in composition.
      d) Buckingham—tests in spelling.

TEACHER

I. Number of teachers employed by sex, grade taught, years of experience.

II. Qualifications.
   1. Actually possessed by present corps.
      a) Academic training.
      b) Teaching experience.
         (1) Experience in local system.
         (2) Experience in present position.
         (3) Total teaching experience.

III. Permanency of Teaching Corps.

IV. The Work of the Teacher.
   1. Number of pupils per teacher.
   2. Number of classes per teacher.
   3. Number of preparations per teacher.
   4. Total amount of time per week teacher is required to spend on school work.
      a) During school hours.
      b) Outside of school hours.
   5. Degree to which teachers are consulted concerning—
      a) General school policies.
      b) Making of course of study.
      c) Selection of supplementary material.
      d) Change of textbooks.

V. Teachers' Meetings.
   1. Kind, frequency, purpose.
   2. Sample programs for various types of meetings.

VI. Salaries.
  1. Actual salaries paid in each class of position.
  2. Comparison of salary with that paid in towns of approximately same size in state.

FINANCES

I. Comparison of local school system with other systems in regard to assessed valuation and relative amount of taxes devoted to education and taxes devoted to all other purposes.
II. Receipts.
  1. Sources and amounts
  2. Rate of increase in propostion to number of children to be educated.
III. Expenditures.
  1. Classified according to a system similar to one recommended by National Bureau of Education.
  2. Per capita cost of various subjects and of various items of general expense based upon average number belonging or average daily attendance.
IV. Summarize Expenses according to Plans Suggested by—
  1. Spaulding in the Newton, Massachusetts, reports.
  2. Goodnow and Howe, in New York City survey.
V. Estimate Receipts and Expenditures for Next Two or Three Years.

MISCELLANEOUS ITEMS

I. School Sessions.
  1. Length of school year, week, day, recitation period.
II. Educational Problems Now Being Investigated by Local Corps.
III. Present Needs of System as Arrived at from Educational Survey.
IV. Constructive Suggestions as to How These Needs Can Be Efficiently Met without Undue Burden from Taxation.

A MORE ELABORATE OUTLINE FOR MAKING AN EDUCATIONAL SURVEY

FACTS ABOUT STRUCTURE AND EQUIPMENT OF SCHOOL PLANT

I. General Facts about Each Building.
  1. Location.
    a) Map showing various school districts and location of each building.
    b) Photograph of each building.
  2. General plan of building.
    a) Floor plans.
    b) Arrangements for traditional school subjects and activities.

c) Arrangement for new and special school subjects and activities.
d) Uses other than school uses.
  (1) Planned for in original construction of building.
  (2) Provided for by modifications of building.
e) Size and present condition of the buildings.
  (1) Total cubic feet of building space.
  (2) Ground area of building in square feet.
  (3) Number of stories.
  (4) Construction cost per cubic foot of space.
  (5) Present value.
  (6) Date of erection.
f) Material.
  (1) Outside walls.
  (2) Roof.
  (3) Floors.
    (*a*) Basement.
    (*b*) Halls and corridors.
    (*c*) Stairways.
    (*d*) Recitation rooms.
    (*e*) Toilet-rooms.
    (*f*) Gymnasium.
g) Protection from fire.
  (1) Fireproof, not fireproof, slow-burning.
  (2) Fire escapes, number and size.
  (3) Exits and stairways, width and number.
  (4) Number of pupils to the linear foot of entrance and exit space.
  (5) Doors swinging in or out.
  (6) Fire extinguishers within the building.
  (7) Other fire-fighting apparatus.
  (8) Automatic latches on doors as safeguard in case of fire or panic.
  (9) Boiler-room inside or outside of building.
h) Heating and ventilation.
  (1) Kind of heating plant.
    (*a*) Stoves with or without jackets or screens.
    (*b*) Hot-air furnace.
    (*c*) Hot water.
    (*d*) Steam.
    (*e*) Combination.
  (2) Method of ventilation.
    (*a*) Doors and windows only.
    (*b*) Gravity system.
    (*c*) Fan or force system.

(3) Air humidifier.
(4) Automatic heat regulation.

i) Rooms and hallways, number and size.
(1) Recitation rooms.
(2) Laboratories.
(3) Rooms for special work.
(4) Assembly room.
(5) Other miscellaneous rooms.
(6) Halls and corridors.
(*a*) Floor space.
(*b*) Floor space per child in average daily attendance.
(7) Number of rooms unoccupied.
(8) Number of rooms occupied.
(9) Number of sittings.
(10) Building space area and volume used for boiler-room, and storage.
(11) Cloak-rooms separate or in connection with recitation rooms.

j) Teachers and pupils in each building.
(1) Number of pupils enrolled.
(2) Number of teachers assigned to each building.

k) Steps and stairways.
(1) Number of steps to reach first floor.
(2) Stairways.
(*a*) Number of.
(*b*) Number of steps to each.
(*c*) Height of risers.
(*d*) Width of steps.
(*e*) Width of stairways.
(*f*) Landing between floors.
(*g*) Double or single stairways.
(*h*) Fireproof or not.
(*i*) Lighting.
(*j*) Length of stairways between landings.
(*k*) Hand rails.

l) Drinking facilities.
(1) Source and purity of water supply.
(2) Pail and common drinking-cup.
(3) Pail and individual drinking-cup.
(4) Faucet and common drinking-cup.
(5) Faucet and individual drinking-cup.
(6) Pump and common drinking-cup.
(7) Pump and individual drinking-cup.

(8) Drinking-fountains.
(*a*) Number and kind.
(*b*) On single floor or on all floors.
(*c*) Average number of pupils to each drinking-fountain.

m) Washing facilities.
(1) Ordinary wash-basin.
(2) Flowing water.
(3) Number of wash-stands.
(4) Number of pupils to each wash-basin.
(5) Soap.
(*a*) Is soap furnished?
(*b*) Liquid or solid.
(6) Towels.
(*a*) Are towels furnished?
(*b*) Common or individual cloth towels.
(*c*) Paper towels.

n) Toilet accommodations.
(1) Outside of building.
(*a*) Screens.
(*b*) Distance from buildings.
(*c*) Distance of boys from girls.
(2) Inside.
(*a*) Smead or flush system.
(*b*) Location.
i. In basement or where.
ii. In path of sun's rays or not.
iii. Individual flush pull.
iv. Automatic flush.
(3) Accommodations for boys.
(*a*) Toilet seats.
i. Kind.
ii. Number.
iii. Number of boys per seat.
(*b*) Urinals.
i. Number.
ii. Number of boys to one urinal.
(4) Accommodations for girls.
(*a*) Number of toilet seats.
(*b*) Number of girls to a seat.
(5) Toilets and urinals, how ventilated.

II. Specific Facts about Each Room.
1. Name of building.
2. Number of room.
3. Use made of room.
4. Number and grade of pupils accommodated.
5. Seating.
a) Chairs or desks.
b) Desks.
(1) Number and size of single non-adjustable.
(2) Number and size of single adjustable.
(3) Number and size of double non-adjustable.
(4) Number and size of double adjustable
(5) Per cent of sittings in the room adjustable.
6. Size and dimensions.
a) Height.
b) Width.
c) Length.
d) Total number cubic feet.
e) Number cubic feet per child in average daily attendance.
f) Total square feet of floor space.
g) Number square feet of floor space per child in average daily attendance.
h) Width of aisles.
i) Width of space in front and in back of room and on sides.
j) Blackboards.
(1) Material.
(2) Length.
(3) Width.
(4) Height from floor.
(5) Total number square feet.
(6) Number square feet per pupil in average daily attendance.
k) Doors swing in or out.
l) Closets.
(1) Number.
(2) Dimensions.
(3) Cubic area.
(4) Shelf area.
m) Lighting.
(1) Number of windows.
(2) Dimensions of each window inside window frame.
(3) Total light area.

(4) Ratio of window to floor space.
(5) Height of window from floor.
(6) Nearness of top of window to ceiling.
(7) Relation of height of top of window to distance across room.
(8) Arched or square tops.
(9) Area of wall space separating windows.
(10) Light from one side only.
(11) Light from two adjacent sides.
(12) Light from two opposite sides.
(13) Light from three sides.
(14) Light from four sides.
(15) Kinds of window blinds.

n) Decorations.
(1) Color of walls and ceilings.
(2) Frequency of decorating walls and ceiling.
(3) Number, size, and value of pictures.
(4) Number, size, and value of pieces of statuary.
(5) Value of all usable equipment.
(6) Value of all usable equipment per child in average daily attendance.
(7) Value of all decorative equipment per child in average daily attendance.

III. Equipment of Building as a Whole (following in many respects Dr. Bobbitt's outline).
1. Library.
a) Number of books of fiction.
b) Number of books of history.
c) Number of books of biography.
d) Number of books of poetry.
e) Number of books of science.
f) Number of books of reference.
g) Number of current event magazines.
h) Number of miscellaneous magazines.
i) Number of each of above per child enrolled.
j) Method of providing funds for library.
2. Number and value of pianos.
a) Value per child enrolled or in average daily attendance.
3. Number and value of organs.
a) Value per child enrolled or in average daily attendance.
4. Number and value of victrolas.
a) Value per child enrolled or in average daily attendance.

5. Number and value of piano-players.
   a) Value per child enrolled or in average daily attendance.
6. Number and value of records for victrolas and piano-players.
   a) Value per child enrolled or in average daily attendance.
7. Number and value of other musical instruments.
   a) Value per child enrolled or in average daily attendance.
8. Supplementary readers.
   a) Fields of work in which they are furnished.
   b) Number of sets.
   c) Number of individual books not in sets.
   d) Total number of all such books.
   e) Value per pupil in average daily attendance.
9. Wall maps.
   a) Number.
   b) Value.
   c) Value per pupil in average daily attendance.
10. Globes.
   a) Number.
   b) Value.
   c) Value per pupil in average daily attendance.
11. Other equipment like stereopticon, lantern slides, etc.
   a) Value of all such.
   b) Value per pupil in average daily attendance.

IV. Extension of Plant during Current Year.
1. Treat according to previous outline.
2. Give procedure in erection of new buildings or improvement of old buildings.

V. Extension of Equipment during Current Year.
1. Give for each building separately.
2. Equipment added by efforts of—
   a) School board.
   b) Principals and teachers.
   c) Children.
   d) Patrons.

ORGANIZATION, ADMINISTRATION, AND SUPERVISION OF SCHOOLS

I. General Organization (largely following suggestions by Goodnow and Howe).
1. Legal organization of schools by state provision.
   a) Brief history of legal provisions.
   b) Present status.

(1) Relation to state department of public instruction.
(2) Relation to state board of education

2. Administrative organization: co-ordination of authority as vested in—

a) School board.
(1) Brief historical evolution of school board in the state.
(2) Present legal relations of board to—
(*a*) State authorities.
(*b*) County authorities.
(*c*) City authorities.
(3) Number and method of selection and term of office of members of the board.
(4) Personnel of school board for period of years past.
(5) Qualifications.
(6) Organization.
(*a*) Officers.
(*b*) Committees.
(7) Salaries.
(8) Meetings.
(*a*) Place and time of meeting.
(*b*) Those present—board, superintendent, clerk, public.
(*c*) Regularity of attendance of members.
(*d*) Length of meetings.
i. Illustrate by series of consecutive meetings.
(*e*) Minutes.
i. Prepared by whom.
ii. How recorded: give samples.
iii. Contents of minutes.
(*f*) Preparation of business for board.
(9) Efficiency of board.
(*a*) Give concrete examples showing efficiency of board in getting things done in a satisfactory manner and without loss of time.
(10) Give account of procedure in connection with getting new school buildings.
(*a*) Selection of architect.
(*b*) Advertising for bond sale.
(*c*) Sale of bonds, if bonds are sold.
(*d*) Receiving bids on building.
(*e*) Awarding contracts.

(11) Powers and duties of the board.
(a) Legislative powers exercised by board, such as—
i. Determining the kinds of schools and nature of instruction.
ii. Controlling conduct of schools by legislation.
iii. Determining under legal limitations, who shall be admitted to school.
iv. Determining salaries and qualifications of teachers and providing for their appointment.
v. Same as (iv) for other employees.
vi. Regulating finances.
(b) Legislative powers delegated to—
i. Superintendent, such as—
[a] Changes in course of study.
[b] Selection of textbooks, apparatus, and other scholastic supplies.
[c] Nomination of teachers and other employees.
ii. Principals.
(c) Administrative powers exercised by board, such as—
i. Construction of buildings.
ii. Granting permission for outside use of school buildings.
iii. Final power in selection of and dismissal of employees on recommendation of superintendent.
iv. Levying taxes.
v. Issuing bonds.
vi. Selection of superintendent.
vii. Expansion of educational system.
viii. Authorizing changes proposed by superintendent.
(d) Administrative powers delegated to the superintendent, such as—
i. Approval of building plans.
ii. Improvements to grounds and buildings.
iii. Purchase of emergency materials, etc.

b) Superintendent.
(1) Historical evolution of the office of superintendent in city and state.
(2) Qualifications and term of office.
(3) Powers and duties, such as—
(a) Providing and keeping all records and reports.
(b) Compilation of statistics.
(c) Custody of books and documents of the school board.
(d) Keeping of school board minutes.

(*e*) Making minor rules relating to conduct of schools.
(*f*) General supervision of instruction.
(*g*) General supervision of course of study.
(*h*) Nominating and assigning teachers.
(*i*) Appointing teachers in time of emergency, and action ratified at next meeting of board.
(*j*) Recommending salaries to be paid.
(*k*) Power of dismissal with or without any special authority from board.
(*l*) Expending money without any special authority.
(*m*) Attending all board meetings and overseeing the writing-up of minutes.
(*n*) Give list of routine things done by the superintendent during one week.

(4) Clerical assistance allowed.
(*a*) List of duties of clerk.
(5) Expenses to teachers' meeting allowed or not.
(6) Office hours.
(7) List of things actually done by superintendent in a period of from one to four consecutive weeks.

c) Principals.
(1) Qualifications of present principals.
(*a*) Special interest in problems of school administration.
(2) Administrative and supervisory duties.
(*a*) List of things they do.
(3) Assistance given them.
(*a*) Clerk.
i. List of things clerks do.
(4) Amount of teaching done by principals.

. Business Administration.
1. Methods of bookkeeping.
a) Give sample pages from various books used or of cards if card system is used.
b) Enumerate the various accounts kept separately, such as those suggested by the National Bureau of Education.
c) Give explanation of methods of recording so as to be easily accessible, payments of bonds, interest, and insurance.
d) Methods of filing correspondence, reports, supplementary information in—
(1) School board office.
(2) Superintendent's office.

(3) Principals' offices.
(4) By special supervisors.
(5) By heads of departments.
(6) In recitation rooms for convenience of teachers.

e) Samples of important reports and records, individual and summary, regarding attendance and progress of pupils.
(1) Reports for general office.
(2) Reports for benefit of teachers and principals in efficient management of an individual building.

f) System of ordering, distributing, and keeping track of supplies.
(1) To be consumed in ordinary work of the school, such as—
(*a*) Chalk.
(*b*) Paper.
(*c*) Pencils, etc.
(2) Non-destructible, such as—
(*a*) Erasers.

g) System of keeping adequate track of minor purchases for repairs of buildings, etc.

h) System of keeping adequate track of supplementary readers and other helps when passed from room to room within the building or between the buildings.

2. Operation of physical school plant.
a) Organization for keeping plant open and in operation.
b) Care of building.
c) Protection of building by insurance.
(1) Show proportion of real value of each building insured against—
(*a*) Fire.
(*b*) Storm.
(*c*) Earthquake.

d) System for furnishing and checking up consumption in janitors' supplies.

III. Educational Administration.
1. Teaching corps.
a) Provision of.
b) Methods of increasing permanence of.
c) System of improving qualifications of teachers already in service.
2. Supervision of actual schoolroom teaching.
a) List of important points determining teacher's success.
b) Concrete statement of method of keeping track of improvement in work.

c) Statement of various things done within a limited period of time in an attempt to improve the classroom work of some specific teacher.
(1) Things done by superintendent.
(2) Things done by principal.
(3) Things done by special supervisor.

3. Supervision of course of study.
a) In whom is authority vested for making?
b) In making course are services enlisted of—
(1) Superintendent?
(2) Supervisors?
(3) Principals?
(4) Teachers?
c) Explain the method by which co-operation is secured.
(1) Illustrate in detail by the use of a specific subject in the curriculum.
d) What organized method is used to insure continued growth and change in the course of study?
e) Upon what bases is the need of changes determined and met?

COURSE OF STUDY

I. Different Subjects Included in the Course of Study.
1. Names of subjects.
2. Date of introduction of each subject.
3. Pressure back of introduction of each subject.
4. Brief outline of course in each subject.
5. Place in course where each subject begins and ends.
6. Amount of time allowed to each subject each week.
a) For preparation on part of pupil.
b) For recitation.
7. School exhibits regularly or occasionally made in connection with various subjects of the curriculum.
8. Time required for average child to complete each year of the course.
a) In primary grades by years only.
b) In department and high school by both years and subjects.
9. Co-ordination or correlation of different subjects.
10. Summary of unique variations from traditional courses or methods of presenting them.

II. Number of Pupils and Percentage of Total School Enrolment, taking Each Subject in Each Grade.

III. Subjects or Parts of Subjects That Are Optional.
  1. With teacher.
  2. With pupil.

IV. Objective Measurements, if Possible, of Degree to Which Teachers Follow Course of Study.

V. Ways in Which Course of Study is Made Suggestive to Teachers.

VI. Organization of Course to Meet Varying Individual and Class-Group Abilities.

VII. Textbooks in Use.
  1. List of.
  2. State uniformity or local discretion.
  3. Method of adoption in each case.
  4. Are books furnished free to all children?
  5. How are poor children supplied with books?
  6. How often are books changed?
  7. Are they all changed at one time or gradually?
  8. Cost per pupil for each grade—
    a) If new books are bought by pupils each term.
    b) If books are held from term to term and used in succeeding grades where possible.
    c) If books are furnished by school.
  9. List of sets of supplementary books by grades.
    a) Method of selection of supplementary books.

THE CHILD

I. School Census.
  1. Taking of census.
    a) Time of year taken and how taken.
    b) Legal provisions.
    c) Method of taking.
      (1) Exhibit blanks.
    d) Pay for taking.
    e) Who takes census?
    f) What constitutes school age for census purposes?
  2. Census statistics.
    a) Enumeration for five years back by years, sex, and nationality.
    b) Homes represented in the last enumeration.
      (1) Number.
      (2) Number having one, two, three, four children of school age.
      (3) Number having more than four children of school age.
      (4) Times family moved during school history of children.

c) Enumeration by wards and years, showing number and percentage of yearly increase or decrease.

II. Enrolment Statistics for Purpose of Showing Efficiency of System in Getting Pupils into School.

1. Enrolment for several years past by race, nationality, and sex.
2. Enrolment by grades—percentage of total enrolment in each grade.
3. Distribution of pupils by grades and occupation and education of parents.
4. Nativity census of enrolment.
   a) Number born in city.
   b) Number born in county outside of city.
   c) Number born in state outside of county.
   d) Number born in each of the states.
   e) Number born in foreign countries.
   f) Number birthplace unknown.
5. Distribution of enrolment at various dates during term.
   a) First day. } Percentage each is of first
   b) First week. } day's enrolment.
   c) First month.
   d) Each succeeding month.
6. Enrolment by age and sex of pupils new to the system.
7. Enrolment in high school by subjects and years.
8. Enrolment by departments—high school, grammar, primary.
9. Show visually relative number of pupils in each grade.
10. Graphic presentation of increase of census over enrolment.
11. Beginners by age and sex. Show age at which pupils first enter school.
12. Number and percentage of pupils living outside the corporation but attending school in the city.
13. Number and percentage of pupils entering system for first time, showing how many school systems have contributed to the present educational status of the pupils.
14. Number and percentage of children in school that have had all of their education in local system.
15. Ratio of number of children in school over compulsory age to the number within the compulsory age. Degree to which this ratio is increasing or decreasing.
16. Tuition of pupils by grades.
17. Grades pupils enter when entering from other systems.
18. State law and its efficiency in getting pupils in.

19. Machinery for enforcing the law in this regard.
    a) Truant officers.
        (1) Method of election.
        (2) Pay.
        (3) Term of office.
        (4) Duties and powers.
    b) Blanks for reports.
    c) Time given to work.
        (1) Number of pupils enrolled for each hour of service per week.
        (2) Cost per pupil per hour of service.
    d) Absences.
        (1) Legal.
        (2) Illegal.
        (3) Reports by buildings.
        (4) By months.
    e) Promptness of reporting cases to truant officer, also promptness of disposing of cases.
    f) Disposition of cases.
    g) Preventive measures.
    h) How efficient is work? How many have to be dealt with two times? Three times, etc.?
    i) Number of visits made by truant officer.
    j) Number of cases reported and disposed of.
    k) Probation plan.

III. Holding Power of School.
1. Age-grade tables by sex.
2. Years-in-school and progress-made tables by sex.
3. Percentage of old, young, normal age for grade.
4. Number and percentage of pupils over five, six, seven, nineteen, twenty, etc.
5. Age distribution in various grades.
6. Percentage of children fourteen years of age or over who have reached grades 5, 6, 7, etc.
7. Number and percentage of children of fourteen years of age or over who returned to school after summer vacation.
8. Number and percentage of graduates, common- and high-school, who go ahead with school work.
9. Membership of each grade on basis of 100 beginners.
10. Median ages of pupils in each grade.
11. Withdrawals by age, sex, months, grades.
12. Causes of withdrawals.

13. Ratio by years of number of children in school over compulsory age to number within compulsory age.
14. Ratio of number over compulsory age in school to number over age according to school census.
15. Extent to which elimination takes place in the grades.
16. Pupils failing to return at the beginning of school in the fall.
    a) Age.
    b) Grade.
    c) School record.
    d) Reasons for leaving.
    e) Attitude of parents.
    f) Character of work secured, pay, how position was obtained, how new work was learned.
    g) Was position secured the kind wanted?
    h) Attitude of child toward evening school or part-time classes.
17. Number leaving high school last year without graduating.
18. Number of pupils by sex between fourteen and sixteen leaving school each year.
19. Grades in which pupils drop out.
20. Withdrawals by months.
21. Percentage entering school that graduate.
22. Percentage of total enrolment leaving in each grade.
23. Number and percentage of over-legal-age pupils returning after a failure.
24. Percentage of total enrolment found in each grade.
25. Percentage of fourteen-, fifteen-, sixteen-, etc., year-olds withdrawing before close of year.
26. Distribution of withdrawals by ages, and causes.
27. Number and percentage of those entering each grade that persist to next grade.
28. Number and percentage by grades and ages of those that drop out before reaching next grade.
29. Number and percentage by grades and ages of those entering any one year that persist to the next year.
30. Number and percentage by grades and ages of those entering one year that do not persist to the next year.
31. Kind of pupils eliminated.
    a) Dull.
    b) Average.
    c) Bright.

32. Average length of school life by grades and ages of pupils over school age who return to school after a failure.
33. Conditions influencing pupils to leave school
    a) Statements as given by parents.
    b) Statements as given by pupils.
    c) School training of parents.
    d) Attitude of parents toward further education for their children.
    e) Occupation of parents.
    f) Social status of parents.
    g) Retardation of pupils.

IV. Maintenance of Regular Attendance after Pupils Are in School.
1. Percentage of attendance by sex, grades, months, rooms, buildings, and by previous years.
2. Tardiness same as 1. Also number of cases and number of separate pupils.
3. Causes of poor attendance and tardiness.
4. Attendance table by number of days.
5. Days in week and part of day that attendance is best.
6. Effect of specific subjects upon attendance and tardiness.
7. Table showing percentage of average daily attendance on average register as compared with previous years.

V. Degree to Which Pupils Make Regular Promotion.
1. Failures.
    a) Figure percentage of failures by age, grade, and subject for each term for several terms.
    b) Degree to which examinations are responsible for failure—
        (1) In several grades below the high school.
        (2) In high school.
    c) Percentage of those entering system for first time that fail.
    d) Effect of failure on succeeding term's work—
        (1) In subjects failed in.
        (2) In subjects passed in during first term.
    e) Distribution of pupils by subjects and failures, by age and failures, by grades and failures.
2. Repeaters.
    a) By age, grade, sex, building, teacher, for several terms.
    b) Percentage of increase and decrease.
    c) Cost to reteach repeaters.
3. Retardation.
    a) Relation of absences to retardation.
    b) Relation of various other factors to retardation.

c) Retardation for each grade for those that have had 1, 2, 3, 4, 5 years in local system of schools compared with pupils from outside.
d) Average retardation of those entering system.
e) Retardation—
(1) In the system.
(2) By the system.
(3) By other systems.
f) Percentage of waste—ratio of number of points failed to number of points earned.
g) Of number enrolled give number and percentage making no credits, one credit, two credits, etc.
h) Comparative performance of failing pupils with various teachers in various grades.

. Acceleration.
a) Same as for retardation.
b) Plans for promoting acceleration and avoiding retardation.
(1) Semiannual promotions.
(2) Promotions by subjects.
(3) High-school subjects offered in grades.
(4) Special groups—strong and weak.
(*a*) Number of pupils ahead of grade by grades.
(*b*) Number of pupils behind grade by grades.
(5) Special teachers.
(6) Separation of sexes.
(7) Adjusting courses of study to pupils.
(8) Supervised study.
(9) Summer school.
(10) Notifying parents of delinquencies.
(11) Table showing by grades number of pupils receiving one or more promotions during the year.
(12) Precautions against pushing brilliant pupils too rapidly.

uality of Passing Work Done by Pupils.

Distribution of grades made showing number and percentage of the grades made falling within the various groups as follows: failing, fair, good, excellent, etc.; or 95–100; 90–95; 85–90; 80–85; 75–80; below 75, if 75 is passing mark.
a) Distribute for whole school in all subjects.
b) Distribute for each year and by groups of years in all subjects.
c) Distribute by subjects for all years combined.
d) Distribute by subjects and years.
e) Distribute also by age and sex.

2. In all of above find middle 50 per cent and show graphically as well as by tables.
3. Comparative performance of pupils trained—
   a) In local school and in schools in other corporations.
      (1) Compare as to—
         (*a*) Entrance age in any particular grade.
         (*b*) Attendance.
         (*c*) Quality of work previously done.
      (2) Comparison as to work done—
         (*a*) By subjects—
            i. As to scholarship, showing median grades and distribution as to rank.
   b) Same for pupils trained in certain grades in different buildings of local system and coming together later on for departmental or high-school work.
   c) Same for pupils trained in same building by different teachers and later grouped together under one teacher. Such analysis helps materially in locating teachers whose work persists as pupils advance.
4. Degree to which pupils maintain their standing when they enter other systems of schools through moving.
5. Performance of high-school graduates when they enter higher institutions of learning compared with graduates from other systems of schools.
6. Age of pupils in each grade of school work making each quality of grade. Are "excellents," for instance, made by under-age, normal, or average pupils?
7. Measure retention of rank as far as grades are concerned as pupil advances in work.
   a) Retention of rank from year to year by years and subjects.
   b) Retention of rank throughout the succeeding part of the course with any one year taken as a basis.
   c) Measure effect on future work of double promotions.

VII. Correlations That Could Profitably Be Worked Out.

1. Correlation of grades in the various subjects in any one term or series of terms.
2. Correlation of retention of rank by terms and by subjects—
   a) From term to term.
   b) Throughout the course with any one year taken as a basis.
3. Correlation between visual acuity and scholastic standing of pupils in various common- and high-school branches.

4. Correlation of auditory acuity and scholastic standing of pupils in various common- and high-school subjects.
5. Correlation of any physical defect with scholastic standing of pupils in various common- and high-school subjects.
6. Distribution of vision groups among intelligence groups in various common- and high-school subjects.
7. Distribution of auditory groups among intelligence groups in various common- and high-school subjects.
8. Attendance of pupils and occupation of parents.
9. Attendance of pupils and progress made in school work.
10. Occupation of parents and school progress made by pupils.
11. Deportment of pupil and school progress of pupil.

III. Graduates.

1. Number and percentage of pupils reaching any particular grade continued to—
   a) Graduation from common schools.
   b) Graduation from high schools.
2. Number and percentage of those who finish either common schools or high schools who finish in the normal number of years of work.
3. Number and percentage of those who finish either common or high schools who finish at the normal age.
4. Number and percentage of high-school graduates that—
   a) Enter college.
   b) Finish one, two, three years.
   c) Graduate.

IX. Measures to Preserve Health and to Protect Life.

1. Protection from fire.
   a) Fire drills.
      (1) Directions for giving.
      (2) Time necessary to empty building.
      (3) Frequency of drills.
   b) Exits and stairways, width and number.
   c) Doors opening outward.
   d) Automatic latches.
   e) Degree of fireproofing in the building.
   f) Fire extinguishers.
   g) Wiring insulated.
   h) Firebox of boilers sufficiently removed from inflammable material.
   i) Rubbish in basement.

2. Sanitation.
   a) How often are furniture, woodwork, and floors washed?
   b) How often are rooms disinfected?
   c) Rooms cleaned by—
      (1) Broom.
      (2) Oil.
      (3) Brush.
      (4) Vacuum cleaning.
      (5) Dry sweeping.
      (6) How dusted?
   d) Wall cleaned or brushed down. Frequency.
   e) Erasers and chalk ledges and blackboards cleaned how often by—
      (1) Janitors?
      (2) Teachers?
      (3) Pupils?
   f) Windows washed how often?
   g) How often are all marks, carvings, etc., removed and furniture revarnished?
   h) Toilets.
      (1) How often and how cleaned?
      (2) Lighting.
      (3) Ventilation.
      (4) Sunshine.
      (5) Toilet paper furnished?
   i) How often is air changed in room?
   j) Is air washed and humidified?
   k) Temperature of recitation rooms.
   l) Drinking-fountains.
      (1) Same as before described.
3. Physical training provisions.
   a) Provisions for indoor and outdoor play and games.
   b) Classroom gymnastics.
   c) Gymnasium or hall gymnastics.
   d) Correctional exercises.
   e) Athletic teams and leagues.
   f) Swimming.
   g) Bathing.
   h) Boy Scout organization.
   i) Camp Fire Girls organization.
   j) Folk dancing.
   k) Formation of personal hygiene habits.
   l) Instruction in feeding, clothing, and sleep of pupils.

m) Instruction in use of tooth brush.
n) Instruction in detrimental effects of use of coffee, tobacco, narcotics.

4. Hygiene of instruction.
   a) Specimen of schoolroom programs showing various combinations of grades.
   b) Does the type of print pupils are called upon to read suit the eyes?
   c) Methods used to prevent overstrain and other detrimental by-products resulting from strenuous effort on part of teacher or school system to maintain a high degree of efficiency.
   d) Are lighting and seating up to standard?
   e) Degree of home study required in the various grades.
5. Medical inspection.
   a) History of, in local system.
   b) Number of officers.
   c) Salaries.
   d) Time given to work.
   e) Cost per hour of examiner's service.
   f) Cost per week per pupil enrolled.
   g) Purposes of inspection.
   h) Scope of work.
      (1) Frequency of examination of children.
      (2) Frequency and thoroughness of inspection of sanitary conditions of buildings.
      (3) Exclusion of children suffering from contagious diseases.
      (4) Special examination of mental defectives.
      (5) Examination of all children absent on account of sickness before giving entrance certificates.
      (6) Periodical examination of all children in case of epidemic.
      (7) Examination of teachers or other employees at initiation of inspector or at direction of board.
   i) Relation of defects discovered to defects remedied? Is this ratio increasing or decreasing?
   j) Forms used.
   k) Emergency help.
      (1) When inspector cannot do all the work are others called in to help?
   l) Causes of exclusions by years, time of year, and sex.
6. Health talks by physicians.
7. Teaching of hygiene.
   a) How low in the grades is it taught?
   b) Essential topics emphasized.

X. Tests to Discover Actual Efficiency of Pupils.
   1. General efficiency.
      a) Binet-Simon.
   2. Efficiency in school subjects.
      a) Teachers' estimates in term reports.
      b) Final examinations.
         (1) History of how they are made.
         (2) Samples of them.
         (3) Forms for reports on these tests.
         (4) Amount they count.
   3. Other tests.
      a) Stone tests in arithmetic.
      b) Courtis tests in arithmetic, reading, language, and handwriting.
      c) Writing—Thorndike or Ayres.
      d) Composition—Hillegas tests in composition.
      e) Thompson's minimum essentials.
      f) Buckingham tests in spelling.

XI. Employment of Children.
   1. How pupils were employed last summer by age, grade, sex.
   2. Same for other holiday periods: Saturdays, Christmas.
   3. Number of pupils partially supporting themselves during school and what they do; also recompense.
   4. Relation between kind of jobs pupils have during summer who did not return to school and those who gave up their positions and returned to school.
   5. Table of workers by age, sex, and those returning and those not returning.
   6. Average age of workers by grades.

XII. Pupil Activities.
   1. Athletics.
   2. Plays.
   3. Papers and other publications.
   4. Clubs.
      a) Fraternities.
      b) Subject clubs.
      c) Literary.
      d) Debating and other organizations.

XIII. Summary Tables in Regard to Above Points.

TEACHERS

I. Number of Teachers Employed.
   1. By sex.
   2. By years, grades, and subjects.
   3. Show yearly increase or decrease in above.
   4. By sections of country from which teachers are drawn.
   5. By years of experience.

II. Qualifications.
   1. Required—board ruling.
   2. Of present corps.
      a) Academic training.
      b) Experience in teaching
         (1) Total years' experience.
         (2) Experience in local system.
         (3) Experience in present position.
      c) Kind of license held.
      d) Sample of blank required to be filled by all applicants for positions.

III. Terms of Appointment.

IV. Nominations Made by Whom?

V. Permanency of Teaching Corps.
   1. Table to show the percentage of teachers for the various periods of service.
   2. List of all teachers who have resigned and reasons for resigning.
   3. Increase of salaries in new positions.
   4. Percentage of those changing each year in grades and high school.

VI. The Work of the Teacher.
   1. Number of pupils per teacher.
      a) Enrolment.
      b) Average belonging.
      c) Average daily attendance.
   2. Number of classes to the teacher.
   3. Number of recitations to the teacher.
   4. Total class time of teacher.
   5. Additional required time at school—minutes per week.
   6. Time spent in school work away from school.
   7. Total time given to school work—minutes per week.
   8. Total time at school—minutes per week.
   9. Time at teachers' meetings—minutes per month.
   10. Number of educational books read during a limited period of time.

11. Number of educational journals read regularly.
12. For each teacher in high school and for each period of the day—
    a) Grade taught.
    b) Subject taught.
    c) Number pupils.
    d) Minutes recitations per week.
    e) Minutes laboratory or shop work per week.
    f) Minutes study work per week.
    g) Minutes consultation per week
13. Table showing increase or decrease in size of classes and percentage of increase or decrease.
14. Degree to which teachers are consulted concerning—
    a) General school policies.
    b) Making course of study.
    c) Selection of supplementary material.
    d) Change of textbooks.
15. Give samples of assignment made in various subjects by teachers.

VII. Improvement of Teachers through—
1. Observation of teaching within the system.
2. Visits to neighboring towns.
3. University extension work or summer-school work.
4. Leave of absence.
5. Travels.
6. Reading.
7. Lectures to teachers.

VIII. Teachers' Meetings.
1. General, district, state, or national attended.
2. Meetings with supervisors.
    a) Drawing
    b) Music.
        (1) Required.
        (2) Voluntary.
    c) Writing.
    d) Physical education.
    e) Give samples of work done in above meetings.
3. Meetings with new teachers and superintendent at beginning of school.
4. General meeting at beginning of school—
    a) Of principals and superintendent.
        (1) Give list of subjects discussed.

b) Of all teachers and superintendent.
c) Meeting of teachers with principals preceding opening of school.

5. Meetings during year—
   a) With principals.
      (1) For building problems.
      (2) For professional work.
   b) With superintendent and principals.
      (1) Grade meetings.
      (2) Course-of-study meetings.
      (3) Visiting-day meetings.
      (4) Special-subject meetings.
      (5) Examination-questions meetings.
      (6) Meetings with truant officer.
      (7) Meetings for presentation and explanation of plans and methods of instruction applicable to all grades.
      (8) Give examples of work done in each type of above meetings.

IX. Income.
   1. Salaries.
      a) Table showing number of teachers at various salaries in elementary and high schools.
      b) Percentage of increase in past years.
      c) Compare second with increase in cost of living.
      d) Basis for determining salary.
         (1) Quality of license.
         (2) Experience.
         (3) Grade taught.
         (4) Success as a teacher.
   2. Other income.
      a) Vacation work.
      b) Other sources.
   3. Number and percentage of teachers having to support others than themselves.
   4. Pension system.

X. Freedom of Teachers to Experiment.

FINANCES

I. Comparison of Local School System with Other Systems in Regard to Assessed Valuation and Relative Amount of Taxes Devoted to Education and Taxes Devoted to All Other Purposes.

II. Receipts.
  1. Directly by board.
    a) From state.
      (1) Basis of distribution of this fund by state.
    b) Local
      (1) From taxation.
        (*a*) Designate the various funds.
      (2) From tuition.
        (*a*) Cash by pupils.
        (*b*) From township trustees for transfers.
      (3) From other sources.
        (*a*) Interest on deposits.
        (*b*) Sale of bonds.
        (*c*) Sale of property.
        (*d*) Refunds from errors.
        (*e*) Sale of textbooks.
        (*f*) Sale of manual-training and domestic-science products.
        (*g*) Any other sources.
    c) Taxation, total and for school purposes for several years past.
  2. Received by principals of the several buildings for various purposes.
  3. Limitations on use of funds.
  4. Resources from various funds for several years past.

III. Expenditures.
  1. Basis of paying out money.
    a) Original order
    b) Bills approved by comparison with original order and goods received.
    c) Recommended for payment by superintendent.
    d) Ordered paid by board.
    e) Mailed by whom?
  2. Per capita cost based on population twenty-one years of age or over, total population, school enrolment, number belonging, average daily attendance, or students per hour of instruction in—
    a) Manual training.
    b) Sewing.
    c) Drawing supervision.
    d) Music supervision.
    e) Elementary schools.
    f) High schools.
    g) Separate subjects in high schools.
    h) Various items of expenditure.

i) Various types of expense.
(1) Instruction.
(2) Administration.
j) Various buildings.
k) Various buildings by types of expenditures.

3. Compare local system with other cities in regard to above items of expense.
4. Summaries of expense.
a) For past five or ten years.
b) For past two years in detail according to plan of—
(1) Spaulding.
(2) Goodnow and Howe.
c) Estimated receipts and disbursements for future years.

MISCELLANEOUS ITEMS

I. Educational Problems Being Investigated at Present by—
1. Superintendent.
2. Individual principals.
3. Individual teachers.
4. Individual buildings.
5. Other co-operative studies.

II. School Sessions.
1. Length of year.
2. Length of week.
3. Length of day.
4. Length of recitation period.
5. Time building is open for admission of pupils.
6. Time teachers are required to be present.
7. Length of recess and noon intermission.

III. Improvements in Various Lines during Limited Number of Years.

IV. Present Needs of System as Arrived at from Educational Survey.

V. Constructive Suggestions as to How These Needs Can Be Efficiently Met without Undue Burden from Taxation.

Bibliography of Educational and Community Surveys

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2. Louisville, Ky.· Board of Education, Louisville, Ky , Second Report, 1912–13. A limited number still available, cost six cents for mailing. Address, Superintendent E. O. Holland, Board of Education, Louisville, Ky. Reprints of the first report are also available. Postage two cents. The report contains some very suggestive tables and comparisons.

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SUMMARY OF TYPICAL SCHOOL SURVEYS

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During the year 1913 the Committee of the National Council of Education known as the Committee on Tests and Standards of Efficiency in Schools and School Systems found that it required in its work a summary of such school surveys as had up to that time been completed. The Committee accordingly directed its secretary to collect copies of such surveys and render a report on them. The report was sent to members of the Committee on June 30, 1913, and was substantially the same as the following. Additions to the report as then made are included in the following pages covering New York, Ohio, Portland, Michigan, Philadelphia, and the Carnegie Foundation surveys. New York was not included in the report to the Committee because it was so well known to all the members. Ohio, Portland, Vermont, Michigan, and Philadelphia had not at that time been surveyed. The medical report of the Carnegie Foundation is also added, because it certainly belongs in any list of typical surveys.

The summary of school surveys now presented is not complete, but it includes all of the major surveys and gives a view of the different types of such inquiries. The chronology of reports is respected in a general way and the reader will certainly not fail to see that there has been a steady evolution in the methods of inquiry and in the form of presenting results.

FIRST BOISE SURVEY

During one week in November, 1910, Superintendent Kendall, at the request of the School Board and the Superintendent, made a survey of the schools of Boise, Idaho. The report was published in a local newspaper, the *Idaho Statesman*, on December 18, 1910. It deals with (1) School Buildings, (2) Teachers, (3) Course of Study, (4) Organization of Schools, and (5) Attitude of the Community. The facts on which conclusions are based were collected through six days of personal observation. There are no tables in the report. Recommendations based on

personal observation are made and the report concludes with a brief statement by the Superintendent to the effect that Board action was taken along the various lines recommended. The report is favorable and the recommendations are all in the direction of enlargement—enlargement of the staff; enlargement of the course, especially by including more industrial courses; enlargement of the organization by adding ungraded classes. The report is 6 pages in length.

MONTCLAIR SURVEY

In May, 1911, Professor Hanus reported to the Board of Education of Montclair, New Jersey, on the schools of that city. The report deals with (1) General Survey, (2) Teachers and Teaching, (3) Program of Studies in (*a*) Elementary Schools and (*b*) High Schools. The report was printed in a pamphlet. The body of the report is 21 pages in length and contains numerous tables and reports of personal observations, the latter apparently based on four days of visiting in the schools. Criticisms are made in detail and numerous recommendations are made.

The tables include: (1) a table of marks in the high school comparing Montclair grades with those in other high schools; (2) a table of time distribution of subjects in grades comparing Montclair and Newton, Massachusetts; (3) general tables of retardation, average ages, and reasons for leaving school; for one school a detailed table of ages and a table of nationalities.

The recommendations on course of study are specific and detailed. The criticisms on general organization are based on the tables. The high school is criticized in its material equipment and in its course of study.

Professor Hanus notes explicitly at the end of his report that he has laid stress on what seemed to be the shortcomings of the Montclair schools and not on their many obvious merits.

BALTIMORE SURVEY

In June, 1911, a Commission consisting of United States Commissioner of Education E. E. Brown, Professor E. P. Cubberley, Superintendent C. N. Kendall, with two assistants, namely, Messrs. N. B. Hillegas and Harlan Updegraff, rendered a report to the Board of School Commissioners of the city of Baltimore on the schools of that city. This report was published as *Bulletin 1911, No. 4*, Whole Number 450, of the

United States Bureau of Education. The body of the text contains 102 pages. A summary of 8 pages precedes the detailed tables and reports and presents the findings of the Commission. The body of the report consists of five chapters. Chap. i (6 pages) describes the plan and history of the survey itself. Chap. ii (26 pages) gives a history of the Baltimore school system and an outline of the social and legal relations of the system. Chap. iii (44 pages) deals with the following topics: (*a*) System of Supervision; (*b*) Teaching Force and Its Training; (*c*) The Elementary Curriculum. Chap. iv (10 pages) deals with the physical conditions in the schools. Chap. v (9 pages) deals with various general topics.

The text includes numerous tables and charts. In many of these charts the Baltimore schools are compared with schools in the other leading cities of the United States.

This report contains much matter dealing directly with the problem of administration and supervision and with the criticisms of the administration. It is evident from the whole tone of the report that the Commission was expected to pass judgment, either favorable or unfavorable, upon the administration.

In point of method it may be noted that comparison with other cities is much emphasized. Personal inspection is recorded as having been made in one-half of the schools and in 250 classrooms. The statement regarding the scope of the report is especially full and suggestive for the use of those engaged in the study of surveys (pp. 18–19).

The report is fully indexed.

With regard to this survey it may be stated that it was made at a time when a controversy between the School Board and the Superintendent was at its height. The immediate effect of the report was small. The School Board, dominated by political motives, failed to reappoint the Superintendent, and many of the unfavorable conditions which are described in the report were allowed to continue or grow worse, while many of the strong policies for which the Superintendent had been working were allowed to lapse.

EAST ORANGE SURVEY

During the autumn of 1911 Professor Moore prepared for the Board of Education of East Orange a report on the schools of that city. The report was printed in a pamphlet of 64 pages early in 1912. Professor

Moore reports that he visited all of the classrooms in both elementary and high schools, talked with most of the teachers and supervising officers, examined the pupils in grades V, VI, VII, and VIII, and consulted with citizens. The report contains the following sections: (1) Historical Sketch; (2) Relation of School to Community; (3) Board of Education; (4) Cost of Schools; (5) General Survey; (6) Teachers; (7) A New Course of Study; (8) The High School, (9) Summary of Recommendations. The text contains tables, several comparing the schools of East Orange with those of other systems. The text is somewhat more general than that of other reports, making excursions into the general field of educational theory and urging conformity in the schools to the general principle that schools should train in thinking rather than in a set amount of subject-matter. The report has the form of an appeal to the general lay reader, though in the discussion of many topics, such, for example, as the subjects of instruction, detailed descriptions of the desirable requirements are given. The tone of the report is not severely critical, though numerous recommendations for enlargement of the schools are made.

GREENWICH EXHIBIT

In June, 1912, the Russell Sage Foundation brought to its consummation at Greenwich, Connecticut, an educational survey which is unique in its mode of presentation. The technical details of this survey are nowhere apparent. An educational exhibit was presented to the citizens of that city and a pamphlet of 24 pages was distributed. This pamphlet gives pictures, diagrams, and maps setting forth vividly the needs of improvement. There are pictures and charts which show the respects in which other school systems are superior to those of Greenwich.

BRIDGEPORT SURVEY

During February, 1913, Superintendent Van Sickle reported to the Board of Education of Bridgeport, Connecticut, his findings on the schools of that city. The report is printed in a pamphlet of 129 pages. Mr. Van Sickle had the assistance of Dr. Ayres, Dr. H. S. West of Cincinnati, Mr. Gordy, Mr. E. E. Mackary of Springfield, Mr. E. Hebden of Baltimore, and Mr. E. H. Webster of Springfield.

The report consists of (1) Preliminary Comments and Recommendations (6 pages); (2) A Financial Study of the System (19 pages); (3) Dis-

tribution of Pupils (10 pages); (4) The City Normal School (10 pages); (5) The High School (8 pages); (6) The Industries of Bridgeport and Industrial Education (16 pages), (7) Special Subjects: History, English, and a Series of Tests in Arithmetic (47 pages).

The report contains numerous comparative tables. It is based on observations and these tables and presents many technical details. It frankly emphasizes the points in which the schools are found to be defective. The demand for more investment of public funds in the schools is presented in such a way that the lay reader would be able to understand the comparisons. The rest of the report is more in the form of a technical report useful to school officers. The paragraphs on the Industries and Vocational Education are full and emphatic and ought perhaps to be described as popular in form.

SECOND BOISE SURVEY

In February, 1913, a commission consisting of Professors Elliott, Judd, and Strayer undertook, at the request of the Board of Education of Boise, Idaho, a second survey of the schools of that city. The report is a pamphlet of 31 pages. The following are the section headings: (1) Scope of Examination (half-page); (2) The Course of Study (2 pages); (3) Supervision (2 pages); (4) The Teaching Staff (2 pages); (5) Classification and Progress of Children through the School System (3 pages); (6) Parks and Playgrounds (1 page); (7) The School Plant (1 page); (8) Expenditures (9 pages); (9) Co-operation of the Community with the Public Schools (2 pages); (10) Report on Instruction as Observed.

The report was based on material accessible in the office of the Superintendent and on observation. There are comparative tables. In tone the report is commendatory, with numerous suggestions for enlargement of the school system. In form the report is intended for the lay reader.

NEW YORK SCHOOL INQUIRY

This report consists of three volumes of 820, 829, and 924 pages, respectively. It weighs sixteen pounds and contains the reports of twelve educational experts, five engineers and accountants, and two students of government organizations, together with correspondence, summaries, and recommendations attaching to the reports. The cost of the survey was $95,139. The report was completed about three years

after the appointment of the Committee of the Board of Estimate and Apportionment, which was in charge of the inquiry.

The history of the inquiry is briefly as follows: Certain investigations of the Russell Sage Foundation and of the Bureau of Municipal Research had stimulated interest in the problems of school expenditure and organization and had raised in the minds of the members of the Board of Estimate and Apportionment doubts as to the efficiency of the existing school organization in New York City. Furthermore, questions had arisen from time to time between the Board of Education and the financial board of the city with regard to jurisdiction over funds. These doubts and questions led the Board of Estimate and Apportionment in 1910 to unfavorable action on the request of the Board of Education for an increase in school funds. At the same time the Board of Estimate and Apportionment appointed a committee to make an inquiry into the organization and operations of the city school system.

This committee, after consultation with a number of educators, secured the services of Professor Hanus, of Harvard, to direct the educational survey. He associated with himself eleven other workers, who took up various aspects of the school operations. Under the immediate supervision of the general Committee and without special relations to Professor Hanus' work, an independent survey of the physical and financial conditions of the schools was undertaken by a staff of engineers and accountants.

It is not appropriate in this brief summary to attempt any account of the contents of the three volumes of the report. The first two volumes are the result of the work of Professor Hanus and his associates in the educational survey. The last volume contains the reports of the financial and physical experts and also the statement of the work that was done by two later appointees, whose report is substituted for the rejected report of one of Professor Hanus' associates.

The history of the publication of the report itself is of some interest. A dispute arose between the Committee of the Board of Estimate and Apportionment and one of Professor Hanus' associates, namely, Professor Moore, of Yale University. Professor Moore had been charged with the responsibility of preparing a report on the administrative aspects of the school organization. He did not answer all of the supplementary questions which were put to him by the Committee, and on this ground the Committee felt justified in refusing to accept and pub-

lish this portion of the report. The original form of the publication of the report was in small pamphlets dealing with the independent contributions of each of the individual members of the educational survey. These independent contributions were prefaced in each case by a portion of Professor Hanus' general report. The bringing together of all Professor Hanus' work was not possible, therefore, until the final three volumes of the report were issued. In the meantime most of the material was reprinted by the World Book Company, and because of the limited number of the official reports printed it is probable that the distribution of the report to students of education will depend chiefly on this outside edition.

It is quite impossible to make any single statement about the bulky reports of the various individual investigators. The reports contain a large number of tables which summarize the studies made by these investigators. They also contain descriptive accounts of observations made in the schools themselves. There is much illustrative material, such as photographs and charts, which supports the statements made by the observers.

The report also contains numerous recommendations which have stimulated discussion throughout the teaching staff of the city of New York and throughout the educational world. These recommendations have frequently been criticized as unfounded. On the other hand, a good deal of objective evidence was presented in each of the reports and it is the contention of the members of the inquiry staff that they made a sufficient investigation of the conditions and reported enough verifiable facts to justify in a scientific way the recommendations made.

Perhaps the most significant result of this inquiry is the establishment in the office of the Superintendent of Schools of New York City of a Bureau of Statistics and Inquiry. The results of the inquiry have also been taken up and extended by several independent organizations, especially the Public Education Association of the City of New York and the Bureau of Municipal Research. Both of these associations have issued publications bearing upon different aspects of the report. Furthermore, the local teachers' associations have devoted much attention in committee and in general session to various aspects of the report.

REPORTS OF CARNEGIE FOUNDATION

The Carnegie Foundation has published two notable reports of surveys, one of the medical schools of the United States and one of the

educational system of the state of Vermont. The first appeared in 1910, the second in 1914.

SUMMARY OF MEDICAL SCHOOLS

The survey of medical schools was made by Abraham Flexner and consists of 326 pages of text preceded by an introduction by President Pritchett of the Foundation and followed by an index and an appendix giving a statistical summary of the facts regarding all of the schools investigated. In point of method the report presents the results of personal inspection and also a careful digest of a large body of documentary evidence, such as catalogues, reports, special communications, and historical materials.

The report is divided into a general discussion and a detailed report on individual schools arranged by states. The general part of the report opens with a historical account of medical education in the United States and Canada. Then follow summaries of the ideal and actual basis of medical education, of the course of study (74 pages), of the financial aspects of the situation (17 pages), and of such topics as medical sects, medical state boards, education of special classes, such as graduate students, women, negroes.

The report is very pointed in its criticisms of the general situation and of special schools. The reconstruction of medical education which has been going on since the appearance of this report is the strongest evidence of its strength and timeliness.

The survey was undertaken by the Foundation because it was found that the administration of university pensions immediately involved the Foundation in the consideration of the relation of medical schools to universities. Historically and in fact medical schools have only the loosest connection with universities. The agent of the Foundation was not invited by many of the schools, while in others he was welcomed and his work facilitated as fully as possible.

VERMONT SURVEY

The survey of Vermont was undertaken at the request of a commission created by action of the state legislature. The legislature had its attention drawn by the governor of the state to the fact that several of the higher institutions of education which were drawing on the state treasury were not co-ordinated in their work and were out of relation to

the public schools. It seemed wise, therefore, to canvass the whole situation with a view to determining the best method of readjusting all of the educational activities. The commission appointed to report to the legislature turned to the Foundation with the request that that institution carry on the investigation.

The report, consisting of 241 pages, sets forth in detail the findings of a group of workers employed by the Foundation. The report is made up of three parts. Part I (16 pages) states briefly how the survey was begun, how it was carried on, and what the investigators recommend. Part II (197 pages) presents in descriptive chapters the observations and findings of the surveyors. Part III (16 pages) presents a statistical summary of the facts discussed in the earlier sections of the report. Part II opens with a description of the state and its educational system. The description takes up in turn the elementary schools, secondary schools, normal schools, vocational schools, and higher institutions. A good deal of space is given to the support of these various school units.

Vermont presents essentially a rural school situation with a few larger communities. The virtue of this report is the large and exhaustive way in which this situation is presented. There is much critical discussion, but the facts seem to be representative and the criticism is directed to constructive recommendations.

The most striking single feature of the report is the recommendation that the state devote its energies and its expenditures to the development of the common schools, even to the extent of withdrawing state aid from the higher institutions which now enjoy some state support.

BUREAU OF MUNICIPAL RESEARCH SURVEYS

The Bureau of Municipal Research did not reply to the request of the secretary of the Committee on School Efficiency for copies of the various investigations which have been made by this bureau or its agents. The secretary has had in hand two manuscript reports—one on St. Paul, one on a rural district. These will be briefly outlined. It is also possible to summarize two printed reports issued by the Bureau, namely, the report on Wisconsin Rural Schools and the report on the City of Atlanta. In the course of correspondence incidental reference has been made to reports on Syracuse and Waterbury, but these are not accessible to the secretary. Attention is also drawn to the fact that a continuous series of small leaflets and postcards is distributed by the

Bureau to school superintendents and school officials. On these leaflets and postcards summaries, questions, and criticisms are circulated, especially with reference to the New York inquiry.

ST. PAUL SURVEY

The survey of public schools of the city of St. Paul was undertaken at the request of a committee of citizens who defrayed the expenses of the survey. The survey falls into three sections: (1) a section dealing with the financial records of the Board of Education and the disbursement of funds; (2) a section dealing with the organization of the office of the Superintendent; and (3) a section dealing with the organization of instruction in the schools. The first section points out the difficulty of extracting from the present books of the Board of Education any accurate figures with regard to different types of instruction and the cost of different phases of the work of the schools. A series of detailed recommendations for changes in the accounting system was made, most of which could have been covered by the single recommendation that the Board adopt the system of accounting which is recommended by the Bureau of Education. The office of the Superintendent is severely criticized because it is deficient in clerical assistance and because the physical conditions did not seem satisfactory to the surveyor. With regard to instruction, a series of concrete examples is given of poor work in the schools. The report after it was prepared was submitted to the Board of Education and was published in sections in the public press of the city. In tone the report is distinctly critical of the school system. The recommendations that are made are based upon general and in many respects abstract standards of efficiency. This becomes especially clear when one considers the situation with reference to the organization of the Superintendent's office. It is stated, for example, that the Superintendent himself is unable to devote himself to his particular duties because he is in a noisy and public office. The Superintendent calls attention to the fact that he deliberately put himself in this sort of office in order that he might be accessible to the citizens of St. Paul and in order that he might have a direct view of the work of the office. The report is an appeal to the citizens of St. Paul for very radical changes.

RURAL DISTRICT SURVEY

A second manuscript report of the Bureau relates to an enterprise which is under consideration by a philanthropic gentleman who intends to start a school in Maryland for a group of orphan boys whom he

intends to adopt. The district which is surveyed in this report is a country district including an area of perhaps ten miles on each side. There are several different schools and small settlements included within this territory.

It is recommended that a new consolidated school replace these schools. In justification of this recommendation a survey of the physical conditions of the existing schools is undertaken and the departure of these schools from the sanitary and architectural standards which ought to be recommended is clearly pointed out. Also examples are given of inefficient instruction. Positive recommendations are made setting forth the standards of construction which should be adopted in the new school; also recommendations of a general type are made with regard to the employment of a higher grade of teachers for the consolidated school. The problem of transportation is discussed at some length. In this discussion of consolidation no reference is made to the laws of Maryland which would have to be considered in bringing about the consolidation and no adequate account is taken of the willingness of the various communities thus to be consolidated. Finally, the physical difficulties of transportation are very lightly treated. The survey is in its tone extremely critical of the existing schools and very optimistic about the advantages of the consolidation. In form it is a recommendation to a single individual and is to be used by the agents of the gentleman to whom it was rendered.

WISCONSIN SURVEY

In August, 1912, a preliminary report on the needs and conditions of the rural schools of Wisconsin was published in a pamphlet of 92 pages. This report was given out as a field study reported to the Wisconsin State Board of Public Affairs by members of the Training School for Public Service. It should be noted that this report, which is primarily a school report, is addressed to a board in the state of Wisconsin which is not in charge of the schools of that state. The report contains, first, a summary of the agencies which make for the improvement of rural schools. The second part contains a survey of lax methods of controlling school expenditures. In this section many details are given of bad management in special districts. The third part contains a survey of the sanitary and educational conditions in the rural schools. The fourth part gives an account of defects in county supervision in the districts visited. The fifth part gives an account of the defects in the

general state supervision of these same districts. The sixth part contrasts the state supervision of state training schools and the state supervision of rural schools. The seventh part contains a series of suggestions for administrative and legislative remedies.

In tone the report is radically critical, not only of the rural schools, but also of the state department. It is addressed to the people of the state in the apparent hope of bringing about legislative changes which shall be advantageous. It may be interesting to note in this connection that the county superintendents at their annual meeting immediately following the appearance of this report passed a series of resolutions in which they describe the report as unfair and inadequate. They point out that the material was collected hastily, that it is not typical, that it does not reach all of the important districts in the state, and that it will be harmful to further state legislation rather than helpful to it. The essential matter which may be of interest to the present Committee is that the report was organized and presented under the auspices of a board wholly unrelated to the educational board of the state.

ATLANTA SURVEY

The survey of the schools of Atlanta is part of a double survey by the Department of Health and the Department of Education. The report is made to the Chamber of Commerce and appeared in a pamphlet of 44 pages, 24 of which refer to schools. The report on schools deals with the physical conditions, with administrative organization, and with observations or so-called "field observations" made in the schools. There are several tables of retardation and examples of record-sheets which are recommended.

OHIO SURVEY

The most comprehensive piece of work which has been done by the Bureau is the Ohio survey, which was carried out under the supervision of Mr. Horace L. Brittain. The report of this survey is a volume of 352 pages. It appeared in 1914. In the appendix (46 pages) are presented in full the "Field Forms and Questionnaires" used in gathering the materials presented in the report. The report is full of very picturesque and concrete materials, photographs, charts which exhibit in striking ways the population of districts and the equipment of schools, and brief, pointed, descriptive paragraphs and recommendations. The report

differs from most survey reports in that it does not aim to present any coherent exhaustive discussions. It is a series of snapshots and racy, "snappy" recommendations.

In the preparation of the report the co-operation of a very large body of workers was secured. Teachers in normal schools and colleges, superintendents, and grade teachers all co-operated to an extent which stimulated the interest of the entire school population of the state. The criticisms were such as to indicate the need of a more general supervisory scheme and the necessity of better training of teachers.

As a result of the survey and the recommendations which were reached, a special session of the legislature enacted a radical revision of the state school laws. The new law provides for supervision and for a redistribution of state funds on the basis of number of teachers and average daily attendance of pupils. There is a minimum wage for teachers, higher training to be required. There is to be a standardization of schools and an admission to higher schools without examination. There is more supervision and a requirement of new subjects in the course of study. There can be no doubt that school reform has gone forward with a rush as a result of the revelations made by the survey.

WISCONSIN STATE REPORTS

During the latter part of 1912 two reports were prepared and issued by the Wisconsin State Department of Education on the rural schools of that state. These reports are evidently prepared by the Bureau of Municipal Research by developing a constructive policy looking toward consolidation of schools and more supervision. The state Superintendent secured the co-operation of a committee of citizens. This Committee of Fifteen through a subcommittee has collected much information regarding consolidation of schools in Wisconsin and other states. A general report of 30 pages is issued by the whole Committee and a special report on Consolidation (90 pages in length) is issued from the subcommittee. The report of the whole Committee is very general in its terms. There is one table showing how little supervision is provided and there is general discussion of the needs of improvement in the teaching staff and in the equipment of rural schools. The report on Consolidation is much more concrete. It contains photographs, arguments in favor of consolidation, and facts regarding the success of consolidation in other states.

NORTH CENTRAL ASSOCIATION SURVEY OF COLLEGES AND UNIVERSITIES

In order to prepare a list of approved colleges and universities for the use of the Association, the colleges and universities of the North Central territory were asked in February, 1913, to fill out elaborate blanks giving full information regarding modes of admission, size of student body, sizes of classes, number of members of faculty, hours of work of the faculty, material equipment, income, and expenditures. On the basis of the returns the secretary of the Commission, which is a branch or Standing Committee of the Association, prepared a series of tables showing the facts with regard to seventy-three approved institutions. These facts are embodied in twenty-three tables with explanatory comments. The report is a pamphlet of 32 pages, issued as *Monograph Supplement No. 4*, of the *School Review*. Subsequent reports of a similar type are promised.

PORTLAND SURVEY

Late in 1912 the taxpayers of the city of Portland, Oregon, at a regular meeting appropriated funds and appointed a committee for the purpose of surveying their schools. The cost of conducting the system had increased nearly sixfold in a decade, while the population had increased only a little more than twofold. Furthermore, there was a feeling throughout the city that the organization of the schools was not so highly efficient as might be desired.

The Committee secured the services of Professor Cubberley, who associated with himself a number of others, and in August, 1913, a report was rendered. The report is printed in a volume of 317 pages. It is made up of four parts. Part I (68 pages) deals with Organization and Administration; Part II (145 pages) deals with Instructorial Needs; Part III (69 pages) deals with Buildings and Health; Part IV (33 pages) deals with Attendance, Records, Costs.

The report is intended for the interested layman as well as for school officers. To this end the general principles of school organization and management are discussed at length. There are numerous tables and charts setting forth the facts on which recommendations are based.

The report is critical of the system, chiefly on the grounds that the Board of Education had taken over too many details of administration and that the instructorial staffs had become very slow to exercise initiative and their work had been reduced to a stereotyped formality. The

major part of the report deals with these difficulties. The method of collecting the facts was through observations made by the surveyors and through the material collected in the form of reports and through the office of the Superintendent. The survey must be described as an outside survey and its effect has been to lead to a very radical reorganization of the system.

MICHIGAN CO-OPERATIVE SURVEY

An interesting example of a co-operative survey undertaken by a teachers' association is presented in the report issued in 1913 by the Upper Peninsula (Michigan) Educational Association.

The report is a pamphlet of 48 pages and is divided into three parts, one on rural schools (13 pages), one on city graded schools (21 pages), and a third (4 pages) on high schools. The rest of the pamphlet is devoted to introduction and recommendations.

The reports were made by school officers. The number of teachers sending in reports is almost the same for the rural schools as for the city schools, so that comparisons are easily made. In all, 1,412 grade teachers, 24 superintendents, and 7 commissioners reported, representing twelve of the fifteen counties; 702 rural teachers reported, 710 city teachers. Of the rural teachers, 137 are without any training for their work and 172 are normal or college graduates. The cities and towns all demand normal or college graduation as prerequisite for grade teachers' certification.

The average number of pupils per teacher in the city and village schools is 37; the average in the rural schools is considerably less, although there are 37 rural schools with more than 50 pupils. The pupils are a surprising mixture of nationalities, the single town of Ironwood reporting 22 nationalities.

The region is devoted to mining, lumbering, and agriculture; the schools consequently make prominent manual-training and agricultural instruction—16 out of the 24 towns reporting give manual training, 7 give agriculture. Six of the towns have trade schools, taught by instructors who have practiced the trades. Trades taught include carpentering, plumbing, blacksmithing, bricklaying, machine-shop, metal work, and pattern-making; two schools have trade courses for girls in dressmaking. The city schools are giving more manual training, trade work, and agriculture than are the country schools.

The city teachers report that 77 out of the total of 710 are performing experiments in physiology along with their instruction. Ninety-nine of these same teachers report taking geography classes on field trips. In the country 152 teachers are performing experiments in physiology; 151 are taking their classes on field trips in geography.

The influence of such a co-operative research is to draw attention to scientific methods of school inspection and incidentally to stimulate much experimentation of the type noted in the last paragraph.

MINNEAPOLIS SURVEY[1]

The Minneapolis Teachers Club published a volume in 1913 entitled *A Vocational Survey of Minneapolis.*

This survey was made by a group of men and women, self-appointed, but representative of a wide range of interests, as follows: the Pillsbury Settlement House, the Board of Education, the Trade and Labor Assembly, the manufacturing interests, the public-school teachers, the State Labor Department, Unity House, the Associated Charities, the University of Minnesota, the Y.M.C.A., the Jewish Charities, and the Voters' League.

The purpose of the survey was to discover what relation, if any, existed between the school training and the subsequent vocational success of children leaving school between the ages of fourteen and sixteen. The method adopted was to get a selected list of 500 names of children who had left school five years prior to the survey; to find these 500 children, if possible; and to make an intensive study of each individual case.

The tentative list originally secured contained 543 names. This list was reduced by 191 names for the following reasons: death of child, 10; removal of family from city, 35; inaccuracy of data as to age or date at which child left school, 140; incomplete information, 6. The remaining 352 names constituted the group of which the study was made.

The various studies related to nationality, school grades, retardation, responsibility for leaving school, social conditions, initial occupations, tenure of positions, and wages.

In conclusion the Committee submitted ten recommendations, all of them related to proposed reorganization or amplification of the school system.

[1] Contributed by Professor F. M. Leavitt.

These recommendations commended the "six-three-and-three" plan, the continuation school, the creation of a department of vocational guidance, improvement of school records, the appointment, as an adjunct to the Board of Education, of an advisory commission, the taking of a school census, and the proposal of new compulsory school legislation.

PHILADELPHIA SURVEY[1]

The Public Education Association of Philadelphia made a survey of 13,740 children regularly employed and legally employed, between the ages of fourteen and sixteen. This study was based on the school census of June, 1912, and was made with the co-operation of the Department of Superintendents and the Chief of the Bureau of Compulsory Education.

The study sought to answer two questions: first, as to what kind of industries such children were employed in, and, second, as to what wages they received.

The study states that, while the number of working children studied was only a portion of the total number employed, the presumption is warranted that those studied are typical of the entire group.

The study showed among other things the distribution of child workers by the nativity of their fathers; the proportion of child workers in various industries; the relative distribution of boys and girls in the different occupations. The result of the study of wages is given in seven statistical tables.

The following interesting conclusions were drawn from the study:

1. That the problem of the working child is not an immigrant problem, since over 50 per cent of those reported as at work are of the second generation of American birth.

2. That this is not the problem of the boy alone, since over 49 per cent of the workers are girls.

3. That the vast majority of children who leave school at fourteen to enter industry go into those kinds of employment which offer a large initial wage for simple mechanical processes, but which hold out little or no opportunity for improvement and no competence at maturity.

4. That wages received are so low as to force a parasitic life.

5. That but slight advancement is offered the fifteen-year-old over the fourteen-year-old child worker.

[1] Contributed by Professor F. M. Leavitt.

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